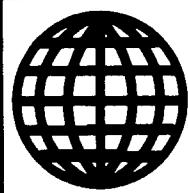


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28 July 1993



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Environmental Issues

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Environmental Issues

JPRS-TEN-93-019

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Official on Efforts To Protect Endangered Wild Animals

*OW1705103093 Beijing XINHUA in English
0940 GMT 17 May 93*

[Text] Beijing, May 17 (XINHUA)—The number of endangered wild animals has increased dramatically as a result of China's concerted protection and breeding effort in recent years.

Meng Sha, a wild animal protection official with the Ministry of Forestry, said that the population of endangered rare animals in China such as alligators, crested ibises, South China tigers, David's deer, wild horses, high-nosed antelopes, and Manchurian tigers has doubled or more.

The number of Chinese alligators increased to 4,000 last year from about 500 in 1978, a seven-fold increase after the establishment of an alligator research and breeding center in anhui province in 1983.

The center has made major breakthroughs in breeding the reptiles which are multiplying by about a thousand a year.

The center was so successful that last year the Convention of International Trade in Endangered Species of Wild Flora and Fauna approved China's application to commercially trade some of the artificially bred reptiles.

The crested ibises is one of the rarest birds in the world. It had not been seen in China for nearly 20 years until 1981 when seven were found in Northwest China's Shaanxi Province.

With three million yuan allocated by the Ministry of Forestry, a crested ibises observation post and a breeding center was set up in the province. Now there are about 30 such birds under the center's protection.

The population of Manchurian tigers in China has also increased to about 140. This includes 62 bred by a center set up in 1986 in Northeast China's Heilongjiang Province and nearly 80 bred in zoos throughout the country. In the early 1980s there were only about 30 left in the wild.

With help of the World Wildlife Fund and other international organizations, the population of David's deer, wild horses and high-nosed antelopes doubled after China imported breeding stock from the United States, Britain, and Germany in 1985. The animals were originally only found in China but later disappeared from the wild.

There are about 100 species of wild animals which exist only in China and thousands of other wild animals within its 9.6 million square kilometers of territory.

Meng Sha said in a recent interview with XINHUA that 328 species of animals have been listed by the central government for priority protection.

"It is not simply a problem existing in China to protect endangered wild animals, but a common issue for mankind," Meng said.

Soon after the People's Republic of China was established in 1949, the central government began to set up a wild animal protection network including laws and listing animals under state protection. It has trained thousands of wildlife experts and management personnel, and established 420 nature reserves which provide protection for forests and rare species.

Currently the Ministry of Forestry is helping provincial branches to launch wildlife protection projects designed to protect other rare wild animals such as musk deer, snow leopards, sables and black bears.

Delegate Urges Further Environmental Protection Cooperation

*OW1705224093 Beijing XINHUA in English
2218 GMT 17 May 93*

[By Yu Yeliang]

[Text] Nairobi, May 17 (XINHUA)—China has appealed to member countries of the United Nations Environment Program (UNEP) to enhance cooperation in promoting economic development and environmental protection.

The appeal was made today by Ye Ruqiu, head of the Chinese delegation to the ongoing 17th session of the governing council of UNEP held at its headquarters here.

The Chinese official said poverty and environmental degradation now facing the mankind are caused by irrational and inequitable international economic order which needs further international cooperation to adjust.

He stressed equal importance should be attached to environmental protection and economic development.

"A development strategy that will ensure a virtuous circle of the ecological system should be carried out so that economic development may go hand in hand with environmental protection," he said.

He said developed countries have a bigger responsibility in international settlement of the global environmental problems as they have created much of the pressure on the environment.

He added a strengthened international cooperation in economic development and environmental protection should be based on respect for state sovereignty.

"The immediate interests of each country and the long-term interests of the world must be taken into account when dealing with the issues concerning environment and development," he claimed.

The 17th session of the governing council of UNEP, which started on 10 May and will end on 21 May, is being attended by delegations and observers from over 100 countries.

World Bank Approves Loan on Environment

OW2306212893 Beijing XINHUA in English
2042 GMT 23 Jun 93

[Text] Washington, June 23 (XINHUA)—The World Bank said today it had approved a credit of 50 million U.S. dollars to help China's environmental clean-up.

The loan, part of the \$76 million project, will be financed by the International Development Association, a World Bank affiliate for concessionary lending.

It will be used to strengthen two of China's most important national environmental organizations and to support a number of projects on industrial pollution, the bank said.

The two organizations are the National Environmental Protection Agency, regulating environment policies and standards, and the Chinese Academy of Sciences, which oversees a national ecological research network.

China's industrial growth and population place increasing pressure on environment, the bank said, adding that in recent years, its environmental pollution has worsened.

This is the bank's first technical assistance project in China focusing on environment, indicating the lending agency is more involved in environment, the bank said.

Greater UN Role in Rio Summit Decisions Urged

OW2406001793 Beijing XINHUA in English
2317 GMT 23 Jun 93

[Text] United Nations, June 23 (XINHUA)—China today urged the UN Commission on Sustainable Development to play an active and effective role in mobilizing various forces to implement Earth Summit decisions.

Addressing the first substantive session of the Commission, head of the Chinese delegation Ambassador Li Zhaoxing noted that over the past year, the international community and the relevant international organizations have done a great deal of work to implement various resolutions adopted at the UN Conference on Environment and Development, also known as the Earth Summit, held last June in Rio de Janeiro, Brazil.

But "what has been done falls far short of the requirements of the effective implementation of the agreement reached at the Rio Conference," Ambassador Li said.

The unfavorable international economic environment that seriously impedes the efforts of developing countries for economic growth and environmental protection

is yet to be improved, and developing countries are still under the enormous pressure of debt, poverty, and worsening terms of trade.

"On such important questions as financial resources and technology transfer, which are essential for global cooperation in environment and development, the consensus reached at the Rio Conference needs to be implemented and the commitments undertaken by developed countries in this regard need to be translated into real actions," Li said.

The ambassador expressed China's views on the work of the Commission:

First, the Commission must observe the guiding principles established at the Rio Conference for International Environment and Development Cooperation. It should construe and implement the agreements reached at the Rio Conference in their entirety. The review of the implementation of Agenda 21 by the Commission should be carried out under the guidance of the basic principles embodied in Rio Declaration. The Commission should also be action-oriented and aim for practical results in promoting international cooperation.

Second, the Commission should adhere to the principle of integrating environment and development. The Commission should not only review questions in various environmental sectors, but also pay attention to cross-sectoral issues and especially to such issues as the unfavorable international economic environment, financial resources and technology transfer that seriously constrain developing countries to protect their own environments and effectively participate in the international environmental protection cooperation.

As for information exchange, the ambassador said, efforts should be made to identify how the international community can better support in particular developing countries in preparing the provision of information, and the consideration by the Commission of the information provided by governments and the organization by the secretariat of such information should be based on the respect for state sovereignty and different national conditions.

First State Environmental Protection Market Set for Ningbo

HK2906032893 Beijing XINHUA Domestic Service
in Chinese 1111 GMT 24 Jun 93

[By Reporter Zhu Youdi (2612 1635 2769): "China's Environment Protection Industry Develops Rapidly"]

[Text] Beijing, 24 Jun (XINHUA)—China's environmental protection industry has developed rapidly over the last few years. A total of 4,000 enterprises and institutions in this line have been set up, so the industry is of a considerable size now.

Xie Zhenhua, director of the State Environmental Protection Bureau, announced today that the first state-level market for environmental protection is under construction in Ningbo. This marks the beginning of a new development stage for China's environmental protection industry.

According to a report, China's environmental protection industry has hired 400,000 workers, its annual output value comes to 6 billion yuan, and it has developed a number of rather advanced technologies and products, with some of them reaching world levels of the 1980s.

The building up and development of the environmental protection industry provides equipment and services for preventing pollution and protecting the environment, thus making positive contributions to social progress and economic development.

As China was late in developing the environmental protection industry, it failed to set up a leading body for the industry in time. Now that the industry, which is immature, has entered the market featuring free competition, it is imperative for us to provide more effective guidance to the industry and build up a market for it.

Xie Zhenhua said: The development of the environmental protection industry provides a powerful material basis and technological means for environmental protection and improvement. The market for the environmental protection industry serves as an important way to connect scientific research, design, and technological development related to environmental protection with production and practical use in this area; as an arena for fair competition; and as an important channel to facilitate flow of goods and technologies used for environmental protection produced and developed both at home and abroad. The setting up of China's first market for environmental protection in Ningbo will greatly promote technical progress, production, and circulation of China's environmental protection industry.

China's first market for environmental protection, which will cover an area of 20,000 square meters, will be situated in the Ningbo economic and technology development area. When completed, it will become a national environmental industry-related information, center, and convention center.

REGIONAL AFFAIRS

Pacific Population Growth Poses 'Serious' Problems

BK2406032093 Hong Kong AFP in English 0310 GMT 24 Jun 93

[Text] Papeete, June 23 (AFP)—Explosive population growth in some Pacific islands has environmental and economic consequences for the region, a report to the Fourth Pacific Leaders Conference here said.

The report for the Hawaiian based East-West Center's Pacific Islands Development Program, written by Margaret Chung, urges political leaders in the region to make population control a priority.

The report described the problems associated with the rapid population increases as "serious and immediate" and said that some areas are moving towards a "threshold of irredeemable degradation."

Atoll nations such as the Marshall Islands, Kiribati, Tuvalu and Micronesia were particularly affected and had acute problems, it said.

"In the more crowded atoll countries, population growth, lifestyle-related health problems and environmental degradation contribute to a looming health care crisis," the report said.

It said the increasing numbers of people and the concentration of economic activity "has serious environmental and economic consequences on small islands."

Chung notes in her report that there has always been change in the Pacific, but nothing comparable "to the tremendous transfiguration experienced within three, two, even one generation, which has irrevocably altered island economies, island environments and island ways of life."

Most urban water supplies in the Pacific are poorly maintained and unsafe and sewage is fed directly into coastal urban waters. The quality of the environment was in sharp decline, Chung warned.

"Changes in settlement patterns and land use increase peoples' vulnerability to natural disasters," Chung said. "Hurricanes wipe out lifetime investments; removal of mangroves and the decay of reefs increase coastal erosion and storm damage."

"Islanders also are vulnerable to environmental forces beyond their control, particularly sea level rise."

Beyond the obvious environmental and economic consequences of the population boom, there are other changes which are more insidious, she said.

"The blue skies and seas of the Pacific and the absence of large-scale industrial pollution encourage complacency." But changes are widespread and have happened quickly, as shown by the disappearance, in one generation, of

some inshore fish species. "Now, more and more people truly just subsist, eating tinned fish, rice and bread and paying for it in hard-earned cash. The disappearance of species may be one sign that some places are moving towards a threshold of irredeemable degradation," she said.

In the Pacific, damage to the environment was often regarded as the necessary cost of progress. "Population growth will not be the sole cause of calamity, but it does speed the time in which the consequences of poor resource management have repercussions upon the human inhabitants of islands," the report said.

Chung said the answer to population problems was likely to come from education. "There is a fortuitous overlap between factors that improve quality of life, such as improved health, nutrition and education, those that enhance productivity, and those which reduce population growth."

AUSTRALIA

Minister on UK Offer To Share Nuclear Test Site Clean-Up

BK3006081493 Hong Kong AFP in English 0033 GMT 30 Jun 93

[Text] SYDNEY, June 30 (AFP)—A British offer of 20 million pounds (30 million U.S.) to help clean up the former nuclear test site at Maralinga in South Australia was welcome but late, a senior government spokesman said Wednesday.

The offer, approved by cabinet in Canberra late Tuesday, means Britain and Australia will share an estimated 101 million Australian dollars (67 million U.S.) in clean-up costs over five years.

The site, which covered traditional lands belonging to an Aboriginal tribe, was used to test atomic bombs in the 1950s and 1960s.

The British also conducted tests in the area in the 1950s and 1960s.

Speaking in a radio interview here Wednesday, Crean said Australia acknowledged some responsibility for the clean-up because it had overseen part of the original clearing of the Maralinga site.

Negotiations carried out by Crean and Foreign Minister Gareth Evans had been complicated by an agreement made by a previous Australian government.

"We were labouring under very difficult circumstances," Crean said.

"The government of the day in 1969 had signed a release to the British government absolving them of any further liability and it was against this background that we had to seek to get the matter reopened."

The ministers had argued for compensation for the Tjarutja Aboriginal people who want 45 million Australian dollars in compensation for loss of access to their traditional lands in Maralinga.

But the British would not accept that component of the claim, so the Australian government will negotiate the remainder of the settlement with the Tjarutja.

Crean said that while the offer was not regarded as too little, it was late.

"It could have been given a lot earlier, that's for sure," Crean said in a radio interview. "The offer that was made we think is a substantial contribution."

INDONESIA

Marine Conservation Zones Planned To Protect Biodiversity

BK2906084493 Jakarta THE INDONESIA TIMES in English 22 Jun 93 p 3

[Text] Jakarta—The government plans to allocate 10 million hectares of its waters for marine conservation zones as part of efforts to protect marine biodiversity.

The move was part of national strategy which had the target of protecting, exploring, and exploiting marine biodiversity sustainably, Aca Sugandhy, assistant to the state minister for environmental affairs, told a workshop here on Saturday. "The marine conservation zones are expected to cover an area of 30 million hectares by the year 2000," he said, adding that the government was aware of the importance of marine conservation for the next generation.

Sugandhy declined to specify the total area of the existing marine conservation zones in Indonesia.

He acknowledged that the government has found it difficult to sustainably manage the existing marine conservation zones as they were located anywhere in the country.

The people are in general less aware of the importance of nature conservation because of their poor knowledge of marine environment, Sugandhy said.

A coordinated management strategy involving all related institutions was badly needed to conserve marine biodiversity, he said.

He expressed concern over the increasing number of activities to convert land in coastal areas for other purposes which caused marine biodiversity to disappear. The disappearance mainly caused by damaged habitat, he added.

"What has caused anxiety is the fact that the ecosystem of areas whose function have changed is not entirely the same as before," Sugandhy said.

He pointed out that wetlands in some areas in Indonesia had been converted to make way for the construction of office complexes, tourist resorts, and oil mining and exploration activities, resulting in the decrease in size of wetlands.

He also said the size of mangrove forests had dropped to 2.5 million hectares at present from 4.3 million hectares in the 1970s because of the excessive exploitation of mangrove forests for the construction of shrimp ponds.

The workshop was held by the Office of the State Minister for Environment Affairs in cooperation with the Environmental Management Development in Indonesia.

Environmentalists Criticize Suharto's Policy on Waste

BK2406111793 Hong Kong AFP in English 1022 GMT 24 Jun 93

[Text] Jakarta, June 24 (AFP)—Indonesian environmentalists forum WALHI slammed Thursday President Suharto's call to supply waste imports to scavengers saying it was inhuman to provide toxic materials to people.

"We do not agree with such a call ... because at least 10 to 20 percent of the waste imports currently in three ports in Jakarta, Surabaya and Medan contained toxic materials," Ita Rahmita of Walhi said. "It is inhuman to do so."

"If the government intends to supply it to scavengers, at least they should divide those toxic waste and those that could be recycled."

Rahmita said there were 400 containers of imported waste in Jakarta's Tanjung Priok port and another 300 containers in the ports of Surabaya, East Java, and Medan, North Sumatera.

She said the illegal waste material imports has been coming from the United States, Japan, Britain, Germany and the Netherlands since last year, despite the government ban issued last November on imported plastic wastes.

"The best solution on the waste imports problem is to return them," she said.

Head of the National Importers Association (GINSI) Amiruddin Saud said Wednesday after meeting with Suharto that the president suggested supplying the 400 waste imports containers in Tanjung Priok to scavengers.

Saud said it would cost a lot and cause pollution to burn the waste imports.

"The government doesn't have to spend funds to burn the waste imports and also it will advantage scavengers as they would have more earnings," Saud said.

Rahmita said besides those 700 containers of imported waste in the three ports, there also many other illegal containers entering the ports which disadvantaged scavengers [sentence as received].

Earlier this month, representatives of 700,000 scavengers throughout Indonesia, 300,000 of whom are operating in Jakarta, complained that their earnings were dropping and they blamed it on the illegal import of waste.

They said factories which usually buy waste plastic that scavengers sift from garbage dumps and small manufacturers for recycling claimed they had enough stock, and would only offer them low prices.

JAPAN

Tokyo, Moscow To Negotiate Nuclear Disarmament Panel

OW2505105793 Tokyo KYODO in English 1001 GMT 25 May 93

[Text] Tokyo, May 25 KYODO—Japan and Russia have started discussing the establishment of a bilateral committee that will administer \$100 million in grants from Japan to help Russia get rid of nuclear weapons and waste, government sources said Tuesday [25 May].

Tokyo wants the denuclearization committee to take up work by June, prior to the 7 to 9 July Tokyo summit of the Group of Seven (G-7) major industrialized nations, they said. The committee will focus on technological cooperation to build nuclear waste storage sites and reprocessing facilities in Russia.

Russia cited the lack of storage and reprocessing facilities on land or delay in their construction as reasons it continued nuclear dumping at sea. Moscow said the dumping of liquid radioactive waste, such as coolants from nuclear reactors or rocket fuel from intercontinental ballistic missiles, will continue at least until 1997. The rockets will be destroyed in large numbers over several years in accordance with disarmament agreements.

The committee will work out concrete projects to enhance Russia's storing and reprocessing capacity to put an end to the radioactive pollution of the sea. It also will decide Japan's share in financing the different measures.

All projects will be financed through the \$100 million aid package Prime Minister Kiichi Miyazawa announced at a G-7 foreign and finance ministers meeting in April in Tokyo.

Decades-long dumping of radioactive substances in the seas close to Japan was disclosed only recently in a Russian Government report, adding another controversial issue to Russia-Japan relations already strained by an unresolved territorial dispute.

The report said nuclear waste was dumped into the Sea of Japan, the Sea of Okhotsk and an area southeast of Kamchatka from late 1959 to 1992. Two nuclear reactors also were dumped in the sea of Japan, the report said.

Japan and Russia agreed in a first two-day joint working group session from 11 to 12 May in Moscow to carry out a joint survey to investigate the impact of nuclear dumping on the marine environment. They also agreed to speed up exchange of data and reports concerning nuclear dumping at sea.

PRC Must Prevent Acid Rain To Receive Power Plant Aid

OW2206083993 Tokyo KYODO in English 0759 GMT 22 Jun 93

[Text] Tokyo, July 22 KYODO—Foreign Minister Kabun Muto said Tuesday [22 June] he has demanded China take measures to prevent pollution such as acid rain that affects Japan if it wants to continue receiving Japanese assistance for power plants.

In a speech at a Tokyo hotel, Muto said he made the call to Foreign Minister Qian Qichen during talks in Tokyo in late May.

He said he told Qian, "It is fine for China to build power plants, but by allowing them to run without desulfurization devices, where is acid rain going to fall? It will fall on Japan."

He told Qian that under such circumstances, Japan could not accede to Chinese calls for aid. He was apparently referring to assistance for the building of power plants.

Foreign Ministry officials who gave briefings on the Muto-Qian talks in May did not mention the discussion of the pollution issue and Muto's threat.

China has reportedly moved to tighten controls over about 3,000 enterprises responsible for nearly 60 percent of the annual volume of the country's industrial pollutants. Coal-fired power plants are among targeted enterprises.

China, the world's largest user of coal, emits huge doses of sulfur dioxide, which causes acid rain. It also is a growing producer of carbon dioxide, which contributes to global warming.

Agreement Reached With ROK on Environmental Cooperation

OW2306022293 Tokyo KYODO in English 0132 GMT 23 Jun 93

[Text] Tokyo, June 23 KYODO—Japan and South Korea have agreed to conclude a pact promoting bilateral cooperation in protecting the earth's environment, government sources said Wednesday [23 June]. Foreign

Minister Kabun Muto and South Korean Foreign Minister Han Sung-chu will sign the accord June 29 in Seoul, the sources said. Japan has already signed similar bilateral agreements with the United States and the former Soviet Union.

Under the pact, Japan and South Korea would set up a committee of experts to choose joint projects for environmental improvement. The two countries also plan to exchange scientists and research, and promote seminars. Japan is considering providing advanced technology on desulfurization to South Korea to help Seoul fight worsening air pollution, the sources said.

Agency Reports Carbon Dioxide Emission Rate Slowing

OW2306085193 Tokyo KYODO in English 0305 GMT 23 Jun 93

[Text] Tokyo, June 23 KYODO—Japan's carbon dioxide emission level went up in fiscal 1991 but at a slower pace than in the previous year, the Environment Agency reported Wednesday [23 June].

Agency officials said Japan emitted an average of 2.61 tons of carbon dioxide per person from artificial sources in fiscal 1991, 1.6 percent higher than the emission level in fiscal 1990.

The agency reported the data during Wednesday's meeting of cabinet ministers regarding global environment preservation.

The 1.6 percent gain, however, was lower than the 3.2 percent rise in fiscal 1990. It was also the lowest advance since fiscal 1987 when the nation's carbon dioxide emissions started increasing.

Japan has pledged to reduce emission levels in line with an action plan on preventing global warming.

The agency attributed the slowed increase of carbon dioxide output to sluggish industries, reflecting the burst "bubble" economy.

But emissions from transport sectors, such as automobiles, ships and railways, and civic sectors, including households, saw substantial gains in fiscal 1991, the agency said.

The 2.61-ton per head figure means that an estimated 324 million tons of carbon dioxide was produced in Japan in fiscal 1991 ended in March 1992.

Carbon dioxide, emitted by burning fossil fuels such as oil and coal, is considered a principle cause of global warming.

Also at the cabinet meeting, the ministers decided on a fiscal 1993 budget totaling 496.3 billion yen to promote the study of preserving the global environment.

Trade Minister Urges Promotion of Ozone Layer Protection

OW0207014193 Tokyo KYODO in English 0923 GMT 1 Jul 93

[Text] Tokyo, July 1 KYODO—Japan's trade minister on Thursday [1 July] urged makers and users of ozone-depleting chemicals like chlorofluorocarbons (cfc's) to promote ozone-layer protection measures with a view to meeting a global agreement to stop production of such materials by the end of 1995, officials said.

International Trade and Industry Minister Yoshiro Mori asked representatives of 72 related business groups for further efforts to reduce cfc's, develop alternatives, and promote recycling and technology transfer to developing nations, the officials said.

Last November, signatories to the Montreal Protocol agreed to speed up the phasing out of cfc's by the end of 1995, instead of the original target date of 2000.

Cfc's, which are used in refrigerators, air conditioners, and aerosol sprays, destroy the atmospheric ozone layer which filters out the sun's harmful ultraviolet rays.

In response to Mori's request, the users asked the government for special support in helping small and medium-sized companies replace cfc's with alternatives, as well as in promoting recycling, the officials said.

NGO's Appeal for More G-7 Attention To Environment

OW0207131093 Tokyo KYODO in English 0805 GMT 2 Jul 93

[Text] Tokyo, July 2 KYODO—International nongovernmental organizations (NGOs) Friday [2 July] urged the industrialized nations to act together to reform the World Bank and consume less natural resources to protect the earth's environment.

On the eve of the Group of Seven (G-7) economic summit in Tokyo next week, 64 NGOs worldwide submitted a set of proposals on environmental protection and assistance to needy nations which they think should be discussed at the annual parley.

One of the key proposals is that the G-7 nations should help revamp the World Bank and other international financial organizations, which tend to act "as impediments to, rather than catalysts for, sustainable development in developing nations," the NGO groups said in an open letter to the G-7 leaders.

They argued that the outdated development strategies and poor project design and implementation quality of the bank result in many environmentally and socially damaging projects, worsening the developing world's already crippling debt crisis.

The agencies urged the G-7 to put forward an agenda at their summit talks for overhauling the World Bank to make it less harmful to the globe and to developing countries.

They also proposed the bank make all information on its projects available to the public both in borrower and donor countries, and thus increase its transparency.

The G-7 groups Britain, Canada, France, Germany, Italy, Japan and the United States.

Also suggested is G-7 debate on the damaging impact of population growth on the environment and the world's social fabric. The earth's population is predicted to double to over 10 billion by the middle of the next century from the current 5.5 billion.

Rapid growth of population, which occurs mostly in the third world, is partly blamed for deforestation, migration pressure and resource depletion, the NGOs' open letter said.

It also noted the developed world consumes natural resources and energy disproportionately considering its tiny share of the world's population.

To address the environmental aspects of human population growth, the G-7 should ensure that population and consumption implications are considered in all economic deliberations.

Among other proposals are G-7 funding to close down the most dangerous nuclear power plants in Russia and other young democracies in Central and East European nations, and G-7 commitments to ensure that a planned world trade pact does not hamper a nation's right to enact justifiable measures to protect the environment.

NORTH KOREA

Korea Demands Joint Nuclear Waste Investigation With Russia

SK0307105893 Seoul CHUNGANG ILBO in Korean
3 Jul 93 p 3

[Text] Although the Russian Government is supporting the ROK Government's position on North Korea's nuclear issue, North Korea recently made a demand to Russia that it conduct a joint investigation with the North on nuclear waste that Russia dumped into the East Sea.

According to relevant government authorities on 3 July, North Korea did not raise any special demand after it announced that the Russian Government dumped nuclear waste into the East Sea last March. However, through its embassy in Russia, North Korea recently made an official proposal to the Russian Foreign Ministry that the two sides hold a meeting on a joint investigation of nuclear waste.

As a result, there is a great possibility that North Korea and Russia will hold working-level talks soon on a joint investigation of nuclear waste.

A relevant government official said that "it is not clear right now whether North Korea wants a joint investigation of nuclear waste dumped into the East Sea only with Russia or with the ROK, Japan, and others as it had earlier planned." This official also noted that "since the investigation of nuclear waste would cost a great deal of money, the possibility that Russia will choose the method of joint investigation with all relevant countries is very high."

Therefore, if North Korea agrees to a joint investigation with the ROK, Japan, and others, it is likely that both North and South Korea will jointly conduct the investigation of nuclear waste in the East Sea.

The ROK, Russia, and Japan initially planned to launch a joint investigation of nuclear waste in the East Sea this year. However, Russia demanded a postponement on the pretext of conducting an investigation of nuclear waste at the North Pole with Norway. As a result, the investigation is likely to begin early next year.

SOUTH KOREA

Environment Minister Seeks Technology From Advanced Nations

SK2406041793 Seoul YONHAP in English 0248 GMT
24 Jun 93

[Text] United Nations, June 23 (YONHAP)—Environment Minister Hwang San-song told a ministerial-level meeting of the first general assembly of the Commission on Sustainable Development (CSD) Wednesday that advanced countries should introduce policies to facilitate the transfer of environment-related technology to developing countries.

Hwang regretted that the advanced countries had failed to keep their promises to support the transfer of environment-related technology from the private sector and the government to developing countries.

She, however, welcomed the decision by the CSD to set up a working-level committee of specialists to support the development of environment-related technology and proposed that it prepare a report on technology transfer.

The South Korean Government's decision to donate 30 million special drawing rights to the 10th International Development Association was a part of its endeavors to share the burden to the best of its economic ability and Korea supported reformation of the global environment facility and would participate in it at a proper time, Hwang said.

Korea took measures to use energy efficiently and minimize the greenhouse effect after the earth summit last

year and was making preparations to ratify the convention on climate change late this year and the convention on biodiversity early next year, Hwang said.

Government Working on Environmental Pact With PRC

SK2406100193 Seoul YONHAP in English 0816 GMT
24 Jun 93

[Text] Seoul, June 24 (YONHAP)—The government and the ruling Democratic Liberal Party [DLP] have begun to draft an environment cooperation pact for signing with China that will reduce the yellow sand and acid rain reaching Korea from the mainland, DLP sources said Thursday.

The hope was to establish an environment cooperation network in Northeast Asia, exchange information on air pollution with China, and exert joint efforts to cut air pollution, they said.

The Environment Subcommittee of the party's Special Committee on Social Reform recently issued a report on the long-distance migration of airborne pollutants with the Environment Ministry and discussed how to tackle the yellow sand and acid rain with Ministry officials.

It was decided to produce an environment agreement after consultations, the sources said.

According to the subcommittee report, airborne yellow sand was present in Korea 14 days this year compared with five days in 1984 and more than 50 percent of the acid rain in Seoul had its origins in China.

The party called for an immediate pact with China and said Beijing was in favor of its proposal.

The Environment Ministry is drafting an agreement that focuses on compensation for the damage done by the yellow sand and acid rain and joint efforts to develop technology on environment protection and reduce occurrences of yellow sand and acid rain, a subcommittee member said.

He said Korea would conduct preliminary studies next month on the damage done by the two unwelcome visitors from the Chinese mainland.

The government earlier decided to set up an observatory on the west coast to examine the travel of yellow sand and acid rain this year and will set up another one on the south coast next year.

Environment Minister Meets EPA Administrator Browner

SK2506022293 Seoul YONHAP in English 0129 GMT
25 Jun 93

[Text] United Nations, June 25 (YONHAP)—South Korean Environment Minister Hwang San-song, visiting

the United Nations to attend a meeting of the Commission on Sustainable Development, met with U.S. Environmental Protection Agency Chief Carol Browner on Wednesday afternoon.

They agreed to effectuate at an early date the memorandum of understanding on cooperation between the two countries in environmental protection signed in 1987. The memorandum says both countries should sign a science and technology cooperation agreement before it is effective, and they have not done that.

Hwang and Browner agreed that both sides will exchange a new memorandum of understanding or will have working-level contacts for effectuating the present memorandum of understanding.

Hwang met with Australian Environment and Sports Minister Ros Kelly on Thursday morning and they agreed that their countries will have working-level contacts to exchange experiences on preserving the ozone layer and developing substitutes for chlorofluorocarbons.

SINGAPORE

Environmental Agreement Signed With Vietnam

BK1605092493 Singapore THE STRAITS TIMES
in English 15 May 93 p 25

[Text] Singapore and Vietnam signed an agreement on environmental cooperation yesterday.

Environment Minister Dr. Ahmad Mattar, who is on an official visit to Vietnam, signed the agreement with Professor Dang Huu, the Vietnamese Minister for Science, Technology and Environment (MSTE) in Hanoi.

A statement from the Environment Ministry (ENV) here said the signing signified yet another step taken by the two countries to strengthen the close bilateral relations concerning the environment.

Under the bilateral agreement, the two ministers will hold regular meetings to discuss environmental policy issues, organise technical symposiums and conferences, implement cooperative projects as well as exchange information on environmental legislation and practices.

At the signing ceremony, Mr. Mattar launched a training project on environmental management and control for officials from the MSTE in Vietnam.

This is the first cooperative project under the bilateral agreement and training will be undertaken by the ENV in Singapore.

The three-week training, to be funded jointly by the Singapore and Vietnamese governments, will allow ENV to share its experience in environmental management with MSTE officials.

Yesterday's management came seven months after Dr. Mattar led the first ENV delegation to Ho Chi Minh City.

During that visit, Singapore signed a memorandum of understanding with the People's Committee to help city officials develop a legislative and institutional framework to manage and control the environment.

A letter of intent was also signed by Singapore Environmental Management and Engineering Service and Enco, an Environment Committee set up by Ho Chi Minh City, to explore commercial opportunities jointly in environmental monitoring, assessment and control.

THAILAND

Navy Launches Environment Preservation Program

BK2006103693 Bangkok Army Television Channel 5 in Thai 1200 GMT 19 Jun 93

[Text] In compliance with the government's eastern seaboard development policy, the Navy plans to launch a program to preserve and revitalize the marine environment in Sattahip Bay off Chon Buri Province.

Vice Admiral Winai Naiyananon, deputy commander of the Royal Operation's Fleet, said his unit has been assigned to carry out the program to save natural resources and the marine environment. The program is designed to assist the Thai Sea Preservation Program and other government agencies and private sectors engaging in environment preservation activities. Included in this program is a campaign to create a sense of care for existing natural resources. The program will be launched on 25 June.

Laws Urged To Protect Environment From Industrial Accidents

BK2006020293 Bangkok BANGKOK POST in English 20 Jun 93 p 22

[Editorial: "Tough Laws Needed To Protect Our Environment in Case of Accidents"]

[Text] Is there no justice in this society? How much longer would industrialisation be allowed to expand and eat up our natural resources? Is greed to be the national god? Don't future generations count for anything? If Mother Nature were able to speak, these might have been some of the questions she would be asking.

The fast pace of industrialisation in this country has pointed up one thing which the more developed countries have begun to realise but have yet to heed its message; that is, the increasing rate of consumption—which ultimately is the goal of industrialisation—leads to the destruction of the environment and eventually of the humankind.

But what is appalling is the way we allow industry to dominate our lives with little control even though its destructive force on our natural environment has clearly manifested itself. And yet all that officials can or will do is to cite some inane reasons for being unable to rein in this greedy beast. But we know that they play a big part in encouraging it to grow.

Last week's fire at the Bang Yi Khan distillery hit close to home. Out of habit, officials immediately brushed aside all concerns about its environmental consequences which are as yet to be assessed. If later it proves to cause severe damages, officials doubtlessly will come up with some excuses that are intended to sweep aside their responsibility.

At the moment, no major "visible" damage has been detected though no one would say if it might not surface later on somewhere down the Chao Phraya River or in the Gulf of Thailand. What we know, however, gives cause for concern. Of the 360 cubic metres of molasses spilled into the river, only 80 cubic metres or just over 20 per cent has been recovered. The rest is lying dormant or flowing downstream, waiting to unleash its harmful effects at some later time.

This is, of course, an "accident." As such, the distillery operator needs not assume any responsibility for any subsequent damages to the environment. That's what the law says.

The potential damage in this case pales in comparison to a similar incident last year in Khon Kaen. There, a giant sugar mill spilled about 9,000 tons of concentrated molasses into the Phong River when the adjacent particle board plant affiliated to the mill was hit by a fire. On its long journey to the Mekong River, the substance left behind countless dead aquatic life and huge ecological damage to the various rivers it passed by. All these rivers have yet to recover their ecological health.

Various agencies responsible for the well-being of the waterways subsequently sought legal action against the sugar mill. But last week, the Office of the Supreme Attorney General delivered a final blow by announcing that it would not file any lawsuit on the agencies' behalf because the incident was an "accident."

The "accident" verdict means that the mill operator would not have to pay a single baht to heal the serious wound the incident has inflicted on Mother Nature and the villagers relying on the rivers for their livelihood.

Fisheries Department chief Plotprasop Suratsawadi was almost fuming at the mouth as he lamented the decision: The incident has caused "the most serious environmental damage in the Thai history, and the damage to the people is incalculable. Whether it was intentional or not, the harm has been done."

The succession of incidents prompted talks among government and political officials about amending related laws to require industry operators to pay for the cost of

restoring the environment in case of accidents. We hope that such talks are not mere lip-service to pacify the enraged public. Action in that direction must begin very soon if justice is to be served.

But the public must have a role to play in the enforcement of the amended laws. We know that many officials are easily persuaded when influence—or money—talks. If officials fail to carry out their duty, the public through representatives such as nongovernment organisations must have the leeway to take action. Our environment is too important to be left to government officials alone.

Mining Licenses With New Environmental Clauses Approved

*BK2206020593 Bangkok THE NATION in English
22 Jun 93 p B1*

[Text] Thirteen applications for mineral prospecting licences were approved by Industry Minister Sanan Khachonprasat yesterday.

However, the new licensees are now subject to additional conditions aimed at protecting the environment.

One of them prevents the resale of the licence. And the ministry reserves the right to revoke all licences within 12 months if licensees fail to start their activities without good reason.

Licensees will also have to plant trees on concession areas or carry out post-mining rehabilitation programmes to preserve the environment, and follow Forestry Department's rules when using areas under its jurisdiction.

Growing Problem of Toxic Waste Viewed

*BK2706042993 Bangkok THE SUNDAY POST
in English 27 Jun 93 p 20*

[From the "Perspective" section: "Toxic waste—a sense of urgency is wanting"]

[Text] Together with the growing population and economy, the volume of household waste has also been growing by leaps and bounds. It has become a major problem, but at least the Government is doing something about it.

Not so with hazardous waste. Thailand's rapid march towards "industrial paradise" has produced vast amounts of toxic waste, ranging from ordinary chemicals, such as pesticides, insecticides and fertilisers, to hospital and industrial waste, which contain heavy metals such as lead, zinc and mercury that accumulate in the soil and waterways.

So far, there has been no sustained and systematic effort to properly dispose of these dangerous substances. Some government agencies have drawn up plans for managing hazardous waste, but there is no sense of urgency at the government level.

Like other aspects of the public safety issue, it will need a disaster to wake officials up, and even that may not be enough to sustain the action. Thailand has so far been fortunate enough not to have had a major disaster of the magnitude of the Love Canal incident in the United States or Minamata Disease in Japan. But if the problem is not addressed seriously soon, there is no telling what kind of accident could happen here.

Already, there have been signs that events are moving in that direction. The blaze that engulfed the chemical warehouse in March 1991 at Klong Toey port, next to the largest slum in Bangkok, produced the first real shock about hazardous waste in this country. Despite official assurances that everything was under control, two smaller fires broke out later showing a lack of will, indeed negligence, on the part of officials in tackling the problem.

In the past several months, successive incidents have clearly shown that the danger is growing.

In May, a man was arrested for burning electronic and computer parts to extract copper from them at the edge of Huay Kha Khaeng wildlife sanctuary in Uthai Thani. The man told police that he and his wife had for years been buying discarded hi-tech components from factories and garbage dumps. They burned them, extracted the copper and sold it for 20 baht a kilo.

At about the same time, authorities arrested a villager in Nakhon Ratchasima for dumping toxic chemicals used in pesticides and herbicides near Khao Yai National Park. The villager told authorities that a pesticide manufacturer in Bang Pu industrial estate in Samut Prakan had hired him to dispose of seventy 200-litre drums of chemical waste for 15,000 baht.

The dumping would have gone unnoticed if people living nearby had not complained to the authorities about the smell of the chemicals. When they went to investigate, they found the drums lying in the open air, some of them leaking badly.

But the negligent villagers and companies involved in dumping are not solely to blame for the hazards of toxic waste. Government agencies, even those which should know better, have been guilty of jeopardising the environment and the public by their own ignorance.

Earlier this year, a chemical dump was accidentally discovered on the grounds of Khasetsat University, where the Agriculture and Cooperatives Ministry has some of their offices. The area was being prepared for a construction project when bulldozers dug up some of the chemical drums buried near the surface. The disturbed chemicals emitted such strong fumes that many university and agency people had to don gas masks.

The ministry had apparently buried the chemicals used in one of its projects there years ago and forgot about them. When they were accidentally uncovered, what did it do? It moved them not far from the original dump and

claimed to have lined the bottom of the new dump so that chemicals would not leak into the ground. Skepticism followed, but with no one else to do the job, it was given the benefit of a doubt.

If anything, the incidents suggest that the government cannot cope with the impact of industrial development. While admitting that large amounts of toxic waste have been dumped in public places, officials say they have to ignore the problem because there are not enough places to dispose of them all.

The way that industry gets rid of toxic waste is not monitored or controlled. Official regulations only say that companies are to take toxic waste outside their compounds for "proper disposal." Even though factories are required to inform the Industry Ministry of such action, there is no official mechanism to make sure that waste is disposed of properly.

A factory will usually hire an individual or a firm to take away chemical waste and sewage sludge. Once the toxic waste leaves its compound, it does not care how it is disposed of.

The demand has created jobs for many people, many of them ordinary villagers who have little or no knowledge of hazardous waste disposal. In their ignorance, they endanger the environment and people living nearby, but the factories do not care. Many factories do their own disposal, dumping toxic waste on public land or in waterways.

Experts do not entirely blame the private sector. They say the lack of facilities is partly to blame.

To tackle the problem effectively, a comprehensive policy is needed, said Dr. Thira Phanthumwanit, director of the Thai Environment Institute.

None exists now, and an increasing number of factories are using more chemicals and heavy metals. Environmental contamination from industrial waste appears likely to rise. Industrial residue and sewage sludge have become major sources of pollution, Dr. Thira of The Thailand Development Research Institute, the country's premiere think-tank, estimates that by the year 2000, the amount of hazardous waste may reach almost six million tons a day, a three-fold increase from 1991, and that more than two-thirds of this would be heavy metal sludge.

An expert advising the Department of Industrial Works on toxic waste from factories in Bang Khun Thian is concerned. He told SUNDAY PERSPECTIVE that sludge from the sewage treatment process has been left piling up in the open air.

The sewage treatment plant in the area treats sewage from dyeing and metal electroplating factories. But he said there is nowhere to dump the leftover sludge because of the delayed construction of a landfill for

hazardous waste in Ratchaburi, scheduled for completion this year. Before being buried, the sludge would be mixed with cement to prevent leaking.

Officials mainly focus their attention on sewage treatment at factories, but ignore solid waste such as sludge.

Current regulations require factories to apply for permission from the Industrial Works Department to transport hazardous waste, and the disposal site must be approved. Factories must also give details about all the waste they produce and how they treat it.

The lack of disposal facilities and know-how, even among factories operators, poses a problem. An official of the Pollution Control Department said many electronic and computer parts manufacturers have sought advice from the department on how to store and dispose of a large amount of substandard or expired products.

The situation has given rise to illegal dumping, which poses severe hazards to the environment and public. The problem is worsened by the fact that most local officials also know little about toxic waste.

Chana Naksuriya, the Ban Rai district chief in Uthai Thani, where the villager was caught burning electronic and computer parts, said officials were confused about the case and how to handle it.

"This was our first experience with such a case. We really didn't know that those parts posed a health hazard, and that they were not supposed to be transported from factories without permission," he said.

The villager faces charges of illegally using a forest reserve under the Forestry Law and of possessing materials that pose a danger to the public. He is liable to a fine of up to 14,000 baht or up to seven years in prison.

Chana said the accused had told him that he had done the same thing for a long time in other provinces, including Suphan Buri and Sing Buri, with no problems.

"I don't know how long our district has been the site of toxic waste dumping," Chana said. "But it's time that we became more aware of the problem."

TUVALU

Pacific Isles Leader Calls For Action on Global Warming

OW0307075593 Tokyo KYODO in English 0637 GMT
3 Jul 93

[Text] Tokyo, July 3 KYODO—The prime minister of Tuvalu, a Pacific island nation, has pleaded for action on global warming in Friday [2 July] meetings with Japanese Government officials, a Tuvalu spokesman said Saturday.

Bikenibeu Paeniu made his pitch in hopes that action will be taken by the leaders of the Group of Seven (G-7)

major industrial nations when they gather for the Tokyo summit coming Wednesday to Friday.

Paeniu urged the environment agency's Director General Taikan Hayashi to support the creation of a United Nations agency promoting renewable energy sources and energy-saving technologies. Paeniu proposed such an agency in a recent letter to the G-7 leaders. He said drastic cuts in the use of fossil fuels, such as coal and gas, are key to reducing greenhouse gases responsible for global warming, also known as the greenhouse effect.

Tuvalu, a scattered group of nine small atolls in the western Pacific Ocean with some 9,000 inhabitants, is threatened by rising sea-levels with the melting of polar ice masses due to the warmer world climate.

Hayashi acknowledged that the industrial countries bear major responsibility for global warming and "fully supported" Paeniu's proposal for creation of a UN agency on renewable and efficient energy.

Foreign Ministry officials in talks later in the day, however, signaled a different approach. Masao Kawai, deputy director general of the UN Bureau, told Paeniu that Tokyo preferred to boost climate-friendly technologies through the UN's Commission for Sustainable Development, which was formed as a result of the June 1992 earth summit.

Kawai described Japan's action plan to curb greenhouse gas emissions by 2000, saying "We will strengthen measures, and we will discuss these matters in the G-7."

ALBANIA

WHO Holds International Meeting on Drinking Water

AU2206191093 Tirana ATA in English 1016 GMT 21 Jun 93

[Text] Tirana, June 21 (ATA)—The World Health Organisation [WHO] held a five-day international meeting in Tirana to review the qualitative content of the drinking water. This meeting was held in Albania according to the decision adopted by the World Health Organisation last September in Geneva.

Opening the first session of the meeting, the Minister of Health and Environmental Protection Tritan Shehu thanked the invited specialists, representatives from all the continents, for the organisation of this meeting.

Working groups made detailed analyses, such as the elaboration of the most specific data on the drinking water of various regions of the world and the defining of the main recommendations.

The foreign specialists of this meeting represent Great Britain, Thailand, Sudan, Costa Rica, France, Lithuania, and Albania. Also attending are representatives of various international organisations, such as the Commission of the European Community, the World Bank, UNICEF [United Nations International Children's Emergency Fund], etc.

BULGARIA

Environment Minister Reports on Pollution From Romanian Chemical Plant

AU0207164293 Sofia BTA in English 1426 GMT 2 Jul 93

[Text] Sofia, July 2 (BTA)—“There is no other industrial facility along the Bulgarian-Romanian border that is more unfavourably located in respect to a Bulgarian settlement.” This is how Minister of Environment Mr. Valentin Bosevski described the location of the Romanian chemical plant in Turnu Magurele, across the Danube from the Bulgarian town of Nikopol, answering an MP’s question. He said that the plant, which is built on the river bank, is visible with the naked eye and, under certain meteorological conditions, affects considerably Bulgarian territory in connection with the trans-boundary flux of chemical components. In early spring and late autumn during the last three years, excessive concentrations of ammonia in the atmosphere have been detected time and again, Mr. Bosevski added.

He said that the chemical plant in Turnu Magurele had been designed by the French in the early 1970s and went into operation during the mid-70s. The life of this kind of chemical plants, using mostly aggressive components, is 25 years. The Turnu Magurele plant is nearing the end of its relatively safe operation, Mr. Bosevski said. He

also voiced his concern over the fact that, according to information he has, over 2,000 tonnes of ammonia were stored on the plant’s site or close to it.

In six instances, readings taken in the area of Nikopol during this year’s first quarter have shown ammonia concentrations which were double and triple the admissible limit. In other cases, pollution has lasted as long as four-five hours: On April 12, with eight to ten-fold larger concentrations, and on May 3 with 12 to 15 times larger concentrations of ammonia, both being the result of industrial accidents, the minister of environment added. He stressed that accurate and reliable statistics of the health condition of the population in the Nikopol area were still not available.

The Nikopol-Turnu Magurele issue is part of the problem of transboundary emission of industrial pollutants from Romania (Vidin- Calafat, Ruse-Giurgiu, Silistra-Calarasi), Mr. Bosevski said. He believes that the problem could only be solved if Bulgarian and Romanian teams of experts examine the industrial polluters and suggest technological overhaul projects which could possibly be funded by international investment institutions. The minister of environment said that such a solution of the problem was meeting with understanding on the part of Romania.

CZECH REPUBLIC

Black Sea Countries Sign Regional Environment Project

AU0107103193 Sofia BTA in English 0918 GMT 1 Jul 93

[Text] Varna, July 1 (BTA)—The signing of an international project for environmental protection of the Black Sea brought to a close the first meeting of the Project Management Committee of the six Black Sea countries. The document was signed by the deputy environment ministers of Bulgaria, Ukraine and Georgia, the state secretary of the Romanian Environment Ministry, and the chief of the environment programme department of the Russian ministry.

The representative of Turkey, Prof. Turgut Balkas [name as received], told a news conference later on that owing to the current cabinet changes in Turkey, the new minister of the environment will sign the project later on.

“We signed a programme of action,” said Bulgarian Deputy Environment Minister Branimir Natov. “We have already emerged from the stage of exploration, development and consultation, 31.6 million dollars have been raised so far,” he said.

Centres specializing in different areas of environmental protection are to be set up in each Black Sea country.

The regional project on management and protection of the Black Sea environment is valid for the 1993-1996 period.

At the next meeting in Istanbul in January 1994, all countries will present their projects.

The meeting in Varna was attended by representatives of the world bank, UNEP [United Nations Environment Program] and UNDP [United Nations Development Program].

HUNGARY

Report Says Air Pollution in Republic Diminished Slightly

AU1706163693 Prague CTK in English 1204 GMT
15 Jun 93

[Text] Prague June 15 (CTK)—Air pollution in the Czech Republic has slightly diminished, says a summary report by the Czech Environment Ministry, which is analysed by the latest issue of the Czech political weekly RESPEKT.

The emissions of sulphur dioxide and nitrogen oxides between 1989 and 1991 declined by 11 percent and 20 percent, respectively. The report says that the decreasing consumption of solid fuels and heavy heating oils accounts for the decrease.

Prague ranks first in all pollutants, except for sulphur dioxide, with the biggest occurrence in north Bohemia. Most, 80 percent, of the pollution in the whole of the Czech Republic originates in large factories and power plants. The air in Prague is polluted mainly by means of transport and local heating by brown coal.

The main reason for the decline in average air pollution is the fact that there have been relatively mild winters since 1985, says Karel Weiss, an Environment Ministry official responsible for air pollution monitoring.

As a result, people heat less and there are better weather conditions for the dispersion of pollutants, explains Weiss. The economic recession in the past three years has resulted in a decline in energy consumption, he adds.

But the chapter "Air" of the report reads: With return of long-term trends in climate, growing pollution especially in the large cities can be expected.

Starting from 1998, the situation is due to change, as emission limits will come into effect.

The quality of ground water has slightly improved over the last three years, said Ladislav Biza, the ministry's official for water protection, because much less fertilisers have been used. But there has also been less rain, and the nitrates are not being washed away.

The quality of surface water has hardly changed, because no major sewage treatment plants have been built, writes the report.

In the Czech Republic, there are some 8,000 rubbish dumps, of which 85 percent are illegal. Only 6 percent are leakproof. But the actual number of the dumps is about twice as high, says Vaclav Morcha, the ministry's official for waste monitoring.

We have very scarce information on the situation and the contents of the dumps, says Morcha.

The report draws attention to the decline in the purchase and processing of the wastes, as only a mere 10 percent of paper, 50 percent of iron, 20 percent of textiles and 40 percent of accumulators are recycled.

An improvement can occur within two or three years, when the ministry expects increased entrepreneurial activity by the enterprises dealing with recycling.

The environmental balance is damaged on 65 percent of the Czech Republic's territory. More than half of plant species and 57 percent of vertebrates are threatened. The area of destroyed forests has been extended during the past three years by three percent to a total of 59 percent.

The money allotted from the state budget to the environment has been cut by 2.6 billion crowns (82 million USD) over 1992, to 8.5 billion crowns (285 million USD), or 2.5 percent of budgetary expenditures.

REGIONAL AFFAIRS

Regional Environmental Issues 4 - 25 June
PY0207183693

[Editorial Report] The following is a compilation of reports on environmental issues monitored by Paraguay Bureau from 4 to 25 June.

ARGENTINA

Buenos Aires TELAM reports in Spanish at 1436 GMT on 4 June that the Energy Secretariat today issued Resolution No. 154/93 whereby thermal power plants will have to comply with rigorous control norms to prevent air, soil, water, and other environmental pollution. The secretariat has issued a supplementary regulation establishing maximum levels of toxic gas and polluted water emissions, and obliges companies to adopt the necessary measures to prevent damage to the environment.

Buenos Aires Clarin reports in Spanish on 16 June, page 56, that the Ecological and Environmental Commission of the Deliberative Council has reported that approximately 24,000 kg of hospital garbage from public and private hospitals in the capital is being used in landfill projects in urban areas or being dumped in the ecological belt. Garbage collection companies mix household and hospital garbage which is considered an extremely contaminating agent.

BOLIVIA

La Paz PRESENCIA reports in Spanish on 12 June, page 4, that according to physicians the number of new-born babies with congenital defects has increased in Oruro Department because of environmental pollution. Dr. German Revollo stated that four or five babies with congenital defects are born every month and that two or three cases are sometime registered in one week. He said that the parents are in close contact with toxic substances like chemical emanations from smelting furnaces and garbage.

Santa Cruz EL MUNDO reports in Spanish on 12 June, page 8, that the Association for the Defense of Life of the Andres Ibanez Province Fourth Municipal Section has announced "its total opposition" to the construction of a cement factory in La Guardia because of the grave ecological danger against agriculture and tourism in the zone. The Association cites the experiences of cement factories in La Paz and Sucre where the thin limestone power "destroyed vegetation for 10 km around those factories."

Madrid EFE reports in Spanish at 2244 GMT on 21 June that "200,000 hectares of forest disappears in Bolivia every year," adding that the cutting of forests here runs at the same rate as in Brazil. Indigenous leaders in the Carmen de Aperecito region report that woodcutters have cut between 3,000 and 4,000 mahogany trees in indigenous lands in the past two years alone. The report

says that agriculture companies and "army of settlers" who cut the forest to cultivate represent the main causes of the damage to tropical forests.

BRAZIL

Rio de Janeiro Rede Globo Television reports in Portuguese at 2300 GMT on 5 June on a survey by the University of Sao Paulo into how the air pollution affects the health of children and senior citizens in the city of Sao Paulo. The report says that 15 percent of citizens over 60 die earlier than they should because of pollution and 25 percent of children suffering from respiratory problems also die as a result of the pollution.

Brasilia Radio Nacional da Amazonia Network reports in Portuguese at 1000 on 5 June that Environment Minister Coutinho Jorge has said the political crisis hurts environmental programs but today the country is strictly fulfilling objectives and implementing many initiatives to solve environmental problems. Today Minister Coutinho and Sao Paulo Governor Luiz Antonio Fleury Filho will participate in a ceremony at the Botanic Gardens to commemorate the day of the environment. The governor announced the creation of a green ombudsman to open communications between the population and the executive branch on environmental matters.

Sao Paulo O ESTADO DE SAO PAULO reports in Portuguese on 5 June, page 18, on Brazil's latest acquisition for environmental observation. It is the European-made satellite-radar ERS-1 which can function through clouds or in the dark. The satellite sends microwaves to the earth and measure the answer back to the satellite. It is in polar orbit at a height of 785 km and scans a strip 100 km wide on each orbit. It can sense variations in water surfaces and geological structures that are not easily detected by other satellites. Moreover, it can sense subtle differences in vegetation, such as different stages in the growth of the same type of forest. This will enable to map old deforestations or swamps that are beginning to suffer degradation.

Brasilia Radio Nacional da Amazonia Network reports in Portuguese at 1000 GMT on 17 June that Environment Minister Coutinho Jorge is personally studying charges filed against Veracruz Florestal Inc. for depredation of natural forests in Bahia State. Jorge travelled to the company's headquarters in Euriapolis, southern Bahia State, and ordered an investigation into this issue. Veracruz Florestal Inc. is working on a project to plant 78,000 hectares of eucalyptus for cellulose production and reforestation. The minister decided to suspend the project until the results of the investigation are released in a week's time.

Brasilia Radio Nacional da Amazonia Network reports in Portuguese at 1000 GMT on 18 June that Environment Minister Coutinho Jorge has announced that next month he will launch the Operation Live Forest after receiving a large number of reports on illegal lumber operations in the Atlantic Forest areas. Inspectors of the

Brazilian Institute for the Environment and Renewable Natural Resources, Ibama, with the assistance of environmental organizations and state officials, will monitor all reforestation projects on both sides of Route BR-101 in southern Bahia State. The minister ordered the canceling of all the reforestation licenses issued to Veracruz Florestal, Inc., a company linked to the Odebrecht Group, in Euriapolis District, Bahia State.

Sao Paulo FOLHA DE SAO PAULO reports in Portuguese on 18 June, Section 10 page 1, that the Strategic Affairs Secretariat has commissioned the Brazilian Institute of Geography and Statistics, IBGE, to produce an environmental report on the Legal Amazon Region, to harmonize settling, natural exploitation, and preservation projects. The report points out that the population grew by 5.43 percent in urban areas and by only 1.81 percent in rural areas. The government is dividing the region in three areas: The occidental area, encompassing Amazonas, Acre, Roraima, and Rondonia States; the oriental area, including Maranhao, Para, Amapa, and Tocantins States; and the meridional area in northern Mato Grosso. CHILE

Santiago Radio Chilena Network reports in Spanish at 1700 GMT on 14 June that the Chilean Carabinero forces today launched an 11-day nationwide campaign to preserve the environment. In the Metropolitan region Carabineros will tightly control abusive emissions of fumes, the honking of horns, faulty exhaust systems, burning of rubbish, and respect for fishing, hunting, and forestry laws.

Madrid EFE reports in Spanish at 1542 GMT on 23 June that Concepcion Appeals Court has ordered changes in the design of the Panque Hydroelectric Project that the National Electric Company, Inc. began constructing on the Bio Bio River, 550 km south of Santiago, because the project violates the right to life, the right to own land, and the right to live in a clean and healthy environment. The project, as it is now, will affect 22,000 hectares of native forests, the land of some 9,000 Mapuche Pehuenches Indians, and will leave a stretch of 14 km of river dry from December to April.

Regional Environmental Issues 11 June - 1 July

PY0407033993

[Editorial Report] The following is a compilation of reports on environmental issues monitored by Paraguay Bureau from 11 June to 1 July.

BRAZIL

Sao Paulo O ESTADO DE SAO PAULO in Portuguese on 27 June on page 7 of its City Section reports that the industries and factories on the banks of the Mogi-Guasu River and the untreated sewage dumped into the river are polluting the water, and fish have almost disappeared. This situation mainly affects the municipalities of Itapira, Mogi-Mirim, and Mogi-Guacu.

CHILE

Santiago EL MERCURIO in Spanish on 20 June on page C7 reports that a rigorous environmental program has been implemented in Antofagasta since 1990 in order to reduce the pollution levels caused by the shipment of concentrated minerals from Bolivia and Chuquicamata. This plan has helped to greatly reduce pollution levels that caused serious problems for people living in the port area last year.

Madrid EFE in Spanish at 1846 GMT on 1 July reports that ecologists state that the construction of the trans-Andean oil pipeline linking Argentina and Chile is causing a serious environment problem in the Nuble national reserve in Chile, where less than 1,000 huemules, native deer, still survive and face extinction.

PARAGUAY

Asuncion ABC COLOR in Spanish on 25 June on page 38 reports that industrial waste is being dumped in streams in Concepcion, threatening human and animal health. The local city hall is responsible for the contamination of the San Antonio stream, which was used as a waste reservoir. Local authorities have done nothing to prevent the dumping of industrial waste.

Asuncion NOTICIAS in Spanish on 26 June on page 35 reports that the Catholic University and the Asuncion City Hall Environmental Directorate last week began an ambitious project to decontaminate the Mburicau Stream that runs through many Asuncion neighborhoods.

PERU

Lima EL COMERCIO in Spanish on 11 June on page A1 reports that nearly 80 percent of the vegetables consumed by Lima residents are highly contaminated because they are watered with sewage. Lima generates 15 cubic meters of sewage per second, which is used mainly in the Chillon River area, where a large quantity of the vegetables consumed in Lima is produced.

ARGENTINA

Leaders Claim Pilcomayo River 'No Longer a Snag'

PY0207155293 Asuncion HOY in Spanish 2 Jul 93 p 5

[Text] After meeting on 1 July with [Paraguayan President-elect Juan Carlos] Wasmoy, Argentine President Carlos Menem spoke for some 10 minutes to the topic of the Pilcomayo River. He reiterated that Paraguay and Argentina have already promised to contract specialized technical services to study ways to solve the problems. He highlighted the fact that it is no longer a snag between Paraguay and Argentina because both parties want a solution. [Argentine] Foreign Minister Guido Di Tella also stressed that Argentine and Paraguay have already

assumed a commitment to resolve the case, be it "plugging, opening channels, changing the river course, or whatever." He added that it cannot be said that the Pilcomayo River is a problem in relations between the two countries.

NICARAGUA

Commentary Suggests Environment Conservation Policies

93WN0452A Managua BARRICADA in Spanish
20 May 93 p 11

[Commentary by Jose Leon Talavera S., chairman of the National Assembly Committee on the Environment and Natural Resources]

[Text] It is no accident that the first human settlements in our country were located alongside our lakes, lagoons, rivers, and volcanoes. The natural beauty and the fertile soil were no doubt sufficient reason to settle there.

Nicaragua's very nationhood, our cultural values, and our national pride developed gradually throughout our history around the reference point of our extraordinary geography, our lakes, volcanoes, rivers, and mountains.

Unfortunately, it has been only as a result of the recent destruction of some of these resources (the death of Nejapa and of more than 40 rivers along the Pacific) that the first signs of a new awareness about defending the country's environment have appeared.

An Issue for Discussion

In the face of this genuine emergency, we on the Environment and Natural Resources Committee have set ourselves the challenge of helping to promote a nationwide debate on the responsibility that each segment of our society has to defend the environment and safeguard what remains of the immense natural resources that the early chroniclers and explorers described.

We propose that the starting point for this national debate be a commitment to remove the issue of the environment from the painful experience of polarization and confrontation in our country. We have even come to think that the discussion of this issue in the National Dialogue might enable us to achieve the first agreements and commitments to meet the challenges of sustainable development for Nicaragua, that is to say, that positive economic indicators and improved living standards for the population can be achieved without sacrificing natural resources, which after all belong to succeeding generations too.

We thus invite you to join us in a true national crusade in defense of nature, to move from protest to action, to stop thinking that a single agency (IRENA [Institute of Natural Resources]) will be able to solve Nicaragua's

extremely serious environmental problems: deforestation, depletion of water resources, pollution of lakes and rivers, extinction of fauna, etc.

The responsibility belongs to all of us, and therefore we call on you to make the following commitments, among others:

1. To prevent the lack of national institutions from endangering our sovereignty along the southern shore of the Great Lake of Nicaragua and in the border areas from Salinas Bay to San Juan del Norte, as our neighbor Costa Rica's development programs may absorb the border communities there.

Likewise, the presence and control of our authorities will have to be strengthened in the Gulf of Fonseca and throughout our continental shelf in the Atlantic and Pacific Oceans in order to prevent the continued plundering of our marine fauna.

2. To correct the neoliberal policies that continue causing unemployment and driving people to make widespread use of firewood and timber products and to include in their diet species of animals that are in danger of extinction (iguanas, tortoises, rabbit, deer, etc).

3. To stem the uncontrolled advance of the agricultural frontier and indiscriminate forest fires, which are even endangering the two largest forest reserves in Central America: Bosawas and the Indio-Maiz River, by undertaking emergency plans in the main protected areas, with the participation of the Armed Forces.

Proposals to Society

4. To offer alternative fuels that are less expensive than firewood to the country's poorest sectors, under special programs to promote electric and kerosene stoves, subsidized by the timber industry through a special tax.

5. To channel the MAS [Social Action Ministry] food-for-work programs into reforestation projects in the most severely plundered areas along the Nicaraguan Pacific, in order to ensure future supplies of firewood and lumber.

6. To prioritize environmental legislation in the National Assembly, in order to give the country legal tools that will enable it to manage its forests, fisheries, water resources, etc.

7. To prioritize environmental education in the nation's schools, in order to ensure that future generations are able to safeguard what previous and current generations have been unable to protect.

Therefore, we are certain that if employer groups and trade unions, professionals and specialists, young people and women, in other words, if civil society as a whole takes up its share of responsibility in the initiatives that we are today proposing, the Nicaragua of tomorrow will once again be a source of pride to all.

VENEZUELA

Oil Industry Pollution in Monagas Surveyed

93WN0463A Caracas *EL DIARIO DE CARACAS*
in Spanish 2 Jun 93 p 21

[Article by Raquel Marcano Lopez]

[Text] The oil industry, or "filthy industry," has left Monagas a legacy of ghost towns, hunger, and sadness. Like Caripito, it shares the feeling of the peasant girl deceived by the "progressive city fellow" who made many promises, but then, once his purpose was achieved, abandoned her to her sorry fate, plunged in poverty and sadness.

The Key Oil Province

According to information obtained from Jose Torres Ulacio, the regional director of the Ministry of Environment in Maturin, 80 percent of the area of Monagas contains oil, making it the most important oil-bearing province in the country.

However, the extent of this wealth, it would seem, can only be measured in terms of the good that can be obtained from it. Juan Pablo Perez Alfonso calls oil the "excrement of the devil," because the production activities are carried out without the slightest respect for the environment in the zones in which this "important extraction" activity is under way.

Doubling Production

The Oritupano oilfield, which is being exploited by CORPOVEN, a subsidiary of PETROVEN [Venezuelan Oil Company], is located in the Aribi sector, in the southwestern part of the state. There, this PETROVEN subsidiary has decided to double the production of crude oil. However, it has only the same installations it did 30 years ago, and according to the technical reports, their useful life is at an end.

The ecological damage done by the activities of CORPOVEN have been reported to the pertinent authorities since 1990. Some 15 communities in this sector have organized to defend themselves and to prevent the extraction of oil from continuing under conditions providing the environment with only minimal protection. This situation affects El Pueblito de Aribi, El Merey de Aribi, Carapal, Caratal, Las Piedritas, Las Gaviotas, San Jose del Nato, La Sardina, El Maitero, Pericoco, La

Puente de Aguas Negras, Las Casitas de Aguas Negras, Santa Barbara, El Limon, and El Venao de Mujica.

Repeated Damage

The technical reports submitted since 1990 have eloquently described the repeated ecological crimes committed by CORPOVEN due to its failure to take the necessary precautions and its disregard for the recommendations issued by the Ministry of Environment and Renewable Natural Resources. In addition, it has failed to implement even the ordinary sanitation measures.

Although oil spillage is the main cause of the ecological damage, it is not the only "situation" resulting from the oil-extraction activities. For example, since 1990, there have been reports of the deteriorating flow in the Las Gaviotas Stream as a result of the shifting of earth that originates in the areas near these water sources. This has caused serious problems, since in the rainy season, large quantities of sand are carried downstream, and they have almost entirely blocked the main channel of this stream and all of the adjacent ones, including the La Burra Stream, which is the source of supply for the producers in the zone.

According to the information provided by the technical commissions, the damage caused by the so-called "contingency situations" are recurrent. The plant cover is being destroyed, ditches are being dug for waste, and they fail to conform to the required parameters in terms of capacity, auxiliary ditches, and impermeable linings. As a result, the liquids percolate into the existing aquifers and cause damage. These ditches also overflow, contaminating the lakes, ravines, palm plantings, and rivers.

The technical reports also indicate that a lack of security in the area of the oil stations can be observed, in addition to extensive exposed pipelines. This creates a high level of risk, since vehicles travel along some sections of the pipeline, and animals have free access to the station.

A Giant Problem

At Discharge Station Five, a gigantic problem has been noted on the ground level. It is located within a ditch about 120 meters from the station's tanks. There are vile odors in the area, caused by the burning of sulfur that comes from the brackish water. Black smoke is also present, because oil is being burned as well. Because of these factors, the vegetation in the environs has been affected by the heat generated by the problematical marshy ground. It is worth noting that no steps have been taken to provide security where access to the station area is concerned.

IRAN

Environmental Council Seeks Reduction in Unleaded Fuel

LD2006123793 *Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 0930 GMT 20 Jun 93*

[Text] With the approval of the Supreme Environmental Council, all vehicle manufacturing factories and all vehicle importers are henceforth duty-bound solely to produce or import vehicles which can run on unleaded petrol. The council decided that the use of vehicles which emit exhaust gases with a composition and level not in compliance with standards will also be banned soon.

Announcing this, Mr. Gholami, head of the environmental protection organization, expressed the hope that the implementation of these measures will reduce air pollution in Tehran and other large towns. He also spoke about the outcome of the UN meeting of environmental ministers, known as UNEP, which was held recently in Nairobi.

IRAQ

Twenty to Thirty Said To Die Daily as Regime Dumps 'Tons of Poisons'

NC1806190593 *(Clandestine) Voice of the People of Kurdistan in Arabic 1708 GMT 18 Jun 93*

[Text] Iraqi opposition sources say the Iraqi regime is dumping tons of poisons in water reservoirs, dams, and the marshlands in southern Iraq as part of a program against Shiite citizens escaping the regime's repression.

An Iraqi opposition leader said 20 to 30 people are dying daily in southern Iraq because of this inhumane campaign. He said the poisons have killed all kinds of fish, the main source of food for citizens hiding in the marshlands.

This campaign follows the Iraqi regime's failure to dry up the marshlands.

ISRAEL

Cancer Cases Said Due to Dimona Radiation

93WN0454A *Tel Aviv YEDI'OT AHARONOT (Weekend Supplement) in Hebrew 4 Jun 93 pp 2-6*

[Article by Shlomo Abramovich; first paragraph is YEDI'OT AHARONOT introduction]

[Text] Is it true that waste water polluted by radioactivity is flowing from the nuclear research center [NRC] in Dimona into the Makhtesh Katan [Little Crater], a popular hiking site? The atomic energy commission [AEC] and the ministry of environmental affairs both deny it, but "Seven Days" sent an investigative team to

the region and discovered radiation higher than international norms allow, radiation that is likely to endanger people who stay in the area for any extended time. Shlomo Abramovich writes on the web of silence and silencing, and on the NRC workers who claim that they contracted cancer on the job because of lack of proper safety precautions. Radiation!

After three and a half hours of walking, we see a startling strip of green on the arid landscape. A twisting wadi, covered by rustling cane and rich foliage. But the pastoral landscape cannot lighten the heavy feeling: The dial of the Geiger counter climbs steadily until it shows a level of gamma radiation 15 or more times higher than it had measured two hours earlier in Jerusalem. At one point, it also measures gamma rays at a rate of 120 milliroentgen per hour—24 times the average radiation in most parts of the state, and above the permissible level of exposure for human beings who do not work at a nuclear installation.

To the west shines the rounded dome of the nuclear reactor outside Dimona. To the east winds one of the most stunning landscapes in the state of Israel—the Makhtesh Katan, with its wide variety of scenes and hues. From the Makhtesh, the threatening strip of vegetation—with the round blue pool at its center—climbs westward.

The "Seven Days" team has succeeded in reaching the place that has been occupying the minds of the Israeli public for a month now, since they first heard of the stream of waste water from the NRC. The stream has succeeded in worrying many residents of the south, and it has brought groundwater experts and environmentalists scrambling to the area.

"Seven Days" took its measurements at a point where no outside entity, unconnected to the NRC, has ever measured before. Even the ministry of environmental affairs has not taken measurements in this location but has made do with points farther away within the Makhtesh, despite the fact that hikers regularly come to this spot. The "Seven Days" test was done as part of an attempt to clear away the fog surrounding the incident of the stream of waste water from the NRC. Its main message: the truth, revealed by an autonomous factor and presented without interfering with state secrets. Still, people who considered helping the investigation received guarded threats from various sources and decided not to cooperate with the newspaper.

The ministry of environmental affairs, headed by Yosi Sarid, has adopted the approach of "openness, revealing the whole truth," according to its own definition of this. But when it is a case of anything to do with the reactor in Dimona, these declarations are forgotten. For example, people at the ministry are unwilling to reveal in which part of the Makhtesh Katan the "calming" tests, which allegedly revealed "levels of radiation which are not worrisome," were made. The ministry people avoid answering the elementary question of whether the tests

were made in that particular wadi into which the waste water from the NRC was flowing, and they refuse to reveal what the levels of radiation were, in the 14 spots where the measurements were made.

The flow of waste water was just one example of the way the NRC pulls out the excuse of a threat to state interests in order to avoid facing safety problems inside the institution and ecological problems outside of it. Under the "umbrella" of secrecy, it is permissible to hide information, use military authority to cover up environmental pollution, threaten anyone who dares to protest, and ostracize anyone who tries to stand up for their rights.

Even more serious—the national security excuse is recruited cynically, even when it is a case of damaging workers' health. The NRC workers who contracted cancer have received no answers to their claims. The rules of secrecy that they have all signed forbid them to turn over any detail from their workplace, and the punishment they can expect if they do so is 15 years in prison. Accordingly, even those around them, including their wives, run into a thunderous silence when they try to ask anything about their working surroundings. Most of them slammed down the phone or slammed the door shut after the first question I asked about the disease.

The widows of workers who have died of cancer have run into a wall of silence and silencing, too. Those relatives of deceased workers who dared to sue the atomic energy commission are ostracized, and their claims, even if they are fair, place them into the category of traitors.

Except that the workers know that the safety level is not what it should be. They have petitioned the high court of justice in an attempt to improve the place's safety levels, and they have demanded to be put under the same kind of objective external inspection that is applied in other workplaces where there is dangerous radiation. Also, a number of widows of NRC workers have presented claims in court that reveal a little bit about the defects in the work procedures there.

And over everything hang the warnings of American experts who say that the reactor in Dimona is outdated. In the Western world they know that reactors that age are prone to accidents. There are experts who believe that the time has come to close down the reactor in Dimona.

The first reports of waste water flowing into the Makhtesh Katan first began to "leak out" more than two years ago. Menahem 'Ivri, an official from the nature reserves authority in the south, discovered unexplained streams of water in rock crevices in the western part of the Makhtesh, and atypically thick plant growth in one of the wadis.

When inspectors from the authority tried to speak to someone from the NRC, they were turned away again and again, and they never did receive sufficient answers. Among other things, they received no answer to the question of how long the waste from the NRC had been

flowing into the Makhtesh. The director of the nature reserves authority, Dan Peri, says that he was shocked when he learned that they had also been unable to get the precise results of the tests in the area of the Makhtesh from the ministry of environmental affairs. Unequivocal demands by the authority's inspectors to halt the stream of water into the wadi went unanswered. But the inspectors of the nature reserves authority, like many others in Israel, are slaves of the concept that it is forbidden to talk about anything that concerns the nuclear reactor. They told nobody about what they had discovered. General Director Peri says that after his people began to show an interest in the stream of water coming from the direction of the reactor, they were ordered not to enter those areas on the rim of the Makhtesh Katan, which has been a favorite tourist site for years.

During the visit of the "Seven Days" team, it turned out that a fence had been put up around the problematic stream. Officials from the NRC claimed this week that civilians are forbidden to enter the place, and that the fact that we were in there is a very serious violation. This, despite the fact that nowhere on the rim of the Makhtesh is there any fence or sign announcing that the place is closed to tourists. The NRC has preferred not to respond to questions on this subject.

Something that may suggest the quality of the water from the reactor in Dimona can be seen in the book by Dr. Frank Branby, a British nuclear physicist who was a member of the team that investigated the reliability of the information received from Mordehai Vanunu, the NRC worker who sold Israel's atomic secrets. Dr. Branby writes that the reactor was originally built with a capacity of 26 megawatts, cooled by carbon dioxide. Later on, apparently in the late 1970s, Israel enlarged the reactor and changed the cooling method from gas to heavy water.

If Dr. Branby's assessments are accurate, the water comes into direct contact with uranium bars at the core; that is, the core constantly creates water contaminated by radioactivity. Nobody knows what is done with this water. No external, autonomous body—including the ministry of environmental affairs—is given the chance to inspect the way the nuclear research center disposes of the water.

Last July, TV correspondent Shlomi Eldar was notified about the stream of water coming from the reactor in the direction of the Makhtesh Katan. He reported it to Elimelekh Ram and began to check out the details. "The next day," Eldar later told colleagues, "a dance of the ministers" began that would be hard to describe. In between telephone warnings, an invitation also arrived, asking me to come have a talk with Environment Minister Ora Namir. I discussed this with Elimelekh Ram. I told him, I do not work for her. Why did I have to go? But Ram told me I had better go."

At the meeting, Eldar was told that the affair had developed to unexpected dimensions. It turned out that

Prime Minister Yitzhak Rabin had ordered Namir in no uncertain terms to take him off the story.

Eldar: "I tried to argue. I asked the minister whether anyone was thinking of examining the groundwater in the vicinity of the Makhtesh and in the aquifer of the plain, but she was not too expert on the subject; she just warned me not to get involved in the case. In answer to the question of why waste water from the NRC was flowing into the Makhtesh, the minister gave the answer she had received from the NRC, by way of Rabin's office: A problem has developed with mosquitos, and it has been necessary to let out quantities of water." Toward the end of the talk, he says, the minister said to him: "I hope you do not want to be the second Vanunu."

After the talk with Namir was over, Eldar returned to the TV station's editorial office, where he says he was startled to find people in his room, rifling through the news editor's papers. Eldar was not allowed to print the story that Menahem Ivri, inspector for the nature reserves authority, and Arik Bar-Sadeh, the southern regional director of the ministry of environmental affairs, had gotten hold of a Geiger counter on their own and tried to examine the levels of radiation inside, and near the rim, of the Makhtesh.

Following their tests, other ministry of environmental affairs people arrived, among them Ehud Ne'eman, the person responsible for radiation levels. They carried out radiation tests and wanted to take samplings of soil and plant life out with them. All during the testing, the environment ministry people were watched by the NRC security guards. At the end, the center's security officer demanded the samplings. The environment ministry people refused, but it was made clear to them that they would not leave the area unless they yielded to his demand.

Shlomi Eldar, who wanted to carry out his own sampling, asked the nature reserves authority to help him reach the place where the measurements had been taken. They told him they would help, and even promised to lend the TV station one of the authority's jeeps. He turned next to the physics department at B'er Sheva University, to borrow a Geiger counter. His request was leaked to the security men at the NRC, and the next day Eldar was called in for the meeting with Minister Namir. The same day, the minister also called the director of the nature reserves authority to her office, and warned him not to help Eldar.

The day after the meeting, on August 2, the general of the southern command renewed the "general order" forbidding entrance to the entire Makhtesh Katan. This general order concerning the Makhtesh Katan has existed formally for 25 years. In reality, however, hikers have been allowed to move around on certain specified paths, the most important being the Wadi 'Ali and Ma'ale 'Ali, which leads up to the marvelous lookout point on the rim of the Makhtesh. The rest of the wadis of the

Makhtesh do not lead to any point that allows access to the NRC or overlooks it, but still, movement in them is forbidden.

What is the real reason? Why has the general in command forbidden hiking in most of the wadis in the Makhtesh? Is the IDF [Israel Defense Forces] closing order meant to protect hikers from the wadi, because radioactive waste has been flowing through it? An IDF spokesman would give us only a formal answer: "The area was closed by order of the military commander to ensure public safety, defend the state, and ensure public order."

Toward the end of March of this year, the new environment minister, Yosi Sarid, visited the nuclear reactor in Dimona. After the visit, Sarid achieved something worthy of mention: The NRC people agreed to let the ministry's people—an outside entity—carry out radiation tests in the Makhtesh Katan region. On April 19, the ministry's radiation unit arrived at the Makhtesh, carried out tests of the level of gamma-radiation, and took samplings of soil and plant life.

The calming announcements from the ministry of environmental affairs raise the question of whether the officials there represent the interests of the citizenry and the environment—or those of the NRC.

The ministry officials vehemently refuse to report the levels of radiation they have discovered, saying only, "They are not meaningful." Another suggestion of "the autonomy" of the workers in the ministry of environmental affairs who deal with radiation can be seen from the following fact: Someone in the ministry was informed two weeks ago that we were looking for an expert to measure the radiation levels in the Makhtesh, and he hurried to report this to the NRC security forces. As a result, pressure was put on those who were considering cooperating with "Seven Days." In some of the talks, the veiled threat was brought up again: "We hope you do not want to be the second Vanunu"—a threat which has turned out to be very effective, and has kept away most of those who might have cooperated with us. Even in the society for the protection of nature they ran as though from a fire at the idea of doing independent measuring in the Makhtesh Katan.

After the call to the ministry of environmental affairs, Minister Sarid ordered the ministry's deputy general manager, Dr. Shmu'el Brenner, to have "a candid meeting" with me, "to tell all." Dr. Brenner showed up at the meeting with a printed answer sheet, attached to the written text. The ministry's printed answer sheet says, among other things: "The levels of radiation in the points where we checked are tiny, and could not harm hikers. The amount of radiation we found is such that if a hiker stayed in the Makhtesh for 100 hours, he would be exposed to the level of radiation that travelers are exposed to during two trans-Atlantic flights."

But Dr. Brenner became confused when we asked: "If the levels are so low, and so far from the minimum threshold

for danger—why did you not just tell us exactly what they are?" Dr. Brenner stuck to the version he had come prepared with, according to which "employees of the NRC check within the boundaries of the reactor, and environment ministry employees check outside the fence." In addition to this, it was hard for him to define what is considered "outside the fence," taking into account the fact that the NRC periodically changes the territory defined as off-bounds to hikers.

In the test "Seven Days" made inside the Makhtesh, in a wadi about a kilometer away from the place where the waste water from the NRC flowed, gamma-radiation of 25 micro-roentgen per hour was found—five times the average background radiation in Israel. On the rim of the Makhtesh, we measured radiation levels of 30 microroentgen, and—near the wadi where the waste water flows—radiation levels of 100 microroentgen or more. In the wadis farther away, the level of radiation was similar to that of Jerusalem.

The levels of radiation that the "Seven Days" test found are considered high, and do not gel with Dr. Brenner's soothing words. If the tests we carried out are accurate, this level of radiation is a threat to the health of anyone who stays in the area for an extended time.

During our tour of the Makhtesh Katan, we discovered that in the eastern part of it, near the end of the wadi leading to the area where the reactor is, there is a large well of water operated by the "Mekorot" company. In this location, we measured levels of 20 to 25 micro-roentgen per hour. The ministry of environmental affairs refuses to answer the question of whether their tests included also the area around the well or the well's water. Similarly, it is not clear whether depth specimens were taken from ground which the water has penetrated, and whether there is fear that the radiation-polluted water has reached the well of water at the entrance to the Makhtesh, or whether it has reached other wells.

It should be added that, besides the penetration of the polluted waste water, there is a concrete danger that the NRCs radioactive waste treatment site—Building Four, according to Vanunu and Dr. Branby—will also pollute both the immediate vicinity and the groundwater in the rest of the Negev region.

In the past, bits and pieces of information have been published about two doctoral dissertations, one in botany and one in zoology, which reported the discovery of abnormalities in certain plants and animals in the vicinity of the reactor. Animals. The contents of the doctorates was not published, and the NRC claimed that the entire region is affected only by radioactivity which originates from minerals in the vicinity.

Prof. Lev Fishelson of Tel Aviv university, a specialist in ecology, says: "I am amazed again and again at the behavior of the NRC officials. Their policy just heightens fears about the reactor and what goes on inside. It is all right for them to keep secret what happens

inside the research center, but the territory outside the center has not been expropriated from the state of Israel."

"As an expert in ecology, my opinion is that none of the substances liable to be emitted from the NRC should be allowed to reach groundwater, but I certainly do not know whether that has happened or not, because they have never allowed anyone to carry out such a test."

Dr. Eshel Ben-Ya'akov, of Tel Aviv University's physics department, says: "In the state of Israel, people think automatically that the entire nuclear realm is outside the public's right to know. Revealing the methods the NRC uses to dispose of waste cannot harm the interests of the state, but there is a tendency to insult the public's intelligence and start from the assumption that they will not understand no matter what they are told."

"Israel is characterized by an anachronistic tendency to pull a curtain over everything connected with the atom and radioactivity. The height of this absurdity came when the entire world published the radiation levels measured in the rainwater after Chernobyl, while only in Israel was it kept a state secret."

In the atomic energy commission, they are having trouble understanding what the fuss is all about. The commission's response included: "The waste in question is strictly sanitary waste. It is treated through oxygenation and evaporation pools, without allowing it to flow into the Makhtesh. Atomic energy commission experts regularly monitor all parts of the Makhtesh. The results in our hands, as well as those held by the ministry of environmental affairs, show no health or ecological problems. We want to emphasize that samplings have been taken in the region for years, and its background radiation remains very low."

The case of the NRC waste is only one example of the extent of the immunity the NRC has built up around itself. Every attempt to crack the exaggerated cover of secrecy around the subject of Israeli nuclear power is read as treason. There have even been cases where workers' widows who tried to sue the NRC heard this kind of threat.

Hayim Itah, may he rest in peace, worked in the NRC from May 1963 until his death from leukemia in June 1989. His friends and even his family knew very little about his work except that he was a maintenance mechanic inside the compound.

"Hayim was a very closed man," says Miryam Itah, his wife. "He said next to nothing about his work, and if we asked, he would insist on changing the subject. In 1982, after he had worked there for 19 years, he started having all kinds of spells of exhaustion. Then he began to have strange aches in his legs, and a little while later, they found out during a routine examination at the NRC that he had a problem with his white blood cells. After an examination of his lymph cells, they diagnosed him as having leukemia."

The discovery of the leukemia, which is known as a disease likely to be caused by radiation, did not change anything in the NRCs policy toward Itah. He went on working as usual, in the same division where he had worked all those years, and he continued to be exposed to the same kinds of radiation that, according to the claim, had caused the disease. On Friday, his day off, he used to go to Soroka Hospital to get blood transfusions and other treatments.

"Looking back," says Itah, "I do not understand how I let him keep going to work in that place where he got the disease. Maybe it was because Hayim was so full of optimism. But even more than I am amazed at myself, I am amazed that it did not occur to his employers to get him away from the source of the disease. Maybe it's because they did not want to admit the connection. On the other hand, the doctors at Soroka did say, right at the beginning of the treatments, that there is a connection between the kinds of radiation found at the NRC and leukemia."

"The doctors told him that with leukemia there is a five-year threshold. If Hayim succeeded in passing it, his chances to stay alive would grow. When we had gotten past the fifth year, we were encouraged." In the sixth year, there was a serious deterioration in Itah's condition. All through that time, on days when he was not in the hospital, he went to work. "The cynicism in the NRCs approach to Itah," say people who knew him, "reached its height when his illness was in the advanced stages. They took his weakness into account' and let him leave work ten minutes early, so he would be able to walk the distance from his division to the shuttle bus."

In the written claim, Attorney Ilan Kener argues: "The deceased worked in the NRC, where he was exposed to high levels of nuclear radiation. This exposure was the result of the defendant's negligence, which expressed itself in the following ways: Safety procedures were defective; proper safety precautions were not seen to; on occasions when the deceased came into contact with poisonous or radioactive substances, he was instructed to wear tags for measuring radioactivity—but only when he was in direct contact with these substances, even though he was also exposed to radiation when he was in indirect contact with them."

Attorney Kener goes on to raise serious charges about the working conditions in Itah's division, and argues: "Radioactive materials were stored in the halls of the plant, and at various sites that the deceased was near, without suitable safety precautions being taken. In some branches of the plant, work was carried out which released radioactive particles into the air, and the ventilation conditioning system did not succeed in expelling them and sufficiently purifying the air."

Miryam Itah's claim is not the first one. In the past, claims have been presented to the court and to national insurance for various kinds of cancer that was caused, according to the workers' claims, by working conditions

in the NRC. A portion of the claims were accepted; in some, the sides reached a compromise.

Yosef Eilenberg, a chemical engineer who worked in the NRC for 23 years, set a precedent when he claimed compensation after one of his kidneys was removed due to cancer, and the other damaged by chemical substances and radioactive contamination. Eilenberg's complaint, similar to that of Itah's widow, was that the center was not careful to completely isolate the sector that contained radioactive contamination from the places which were supposed to be free of contamination. He said that in his work he was exposed to no fewer than 24 substances that were poisonous or radioactive, yet in spite of this his division was defined as a "cold zone."

He also claimed that the center did not provide sufficient medical examinations, but made do with just a yearly checkup. Also, according to his claim, when there were accidents and he was exposed to radiation, he was not sent for medical tests.

In its defense plea, the nuclear research center denied most of the claims, but in the end the sides came to a compromise, and Eilenberg won compensation. At the same time, social security recognized his claim and gave him disability insurance.

In May 1991, the claim of Ya'ish Ashraf, a father of seven in Dimona, was presented to the court in Tel Aviv. Ashraf sued the reactor, claiming that in the 11 years he worked there, his head had been affected by radiation and exposure to radioactive substances.

There are legal cases pending right now, of additional cancer victims who worked in the NRC for many years and believe that their illnesses are due to exposure to high levels of radiation. "Seven Days" was told that three lawyers in Tel Aviv and Jerusalem are being kept busy working on six more claims from the widows of NRC workers who died of cancer.

Most of the cancer patients and widows were afraid to be interviewed. The sick workers explained that any cooperation with the newspaper was likely to be considered as handing over secrets. The widows told us that if they allowed themselves to be interviewed about the reasons for the deaths of their dear ones, it would be considered by their husbands' friends as betrayal.

Miryam Itah understands well what they are talking about. She has felt on her own skin the total ostracism that awaits anyone who dares to criticize the nuclear research center. "After Hayim died, all his friends from work used to come to visit us; the social worker from the NRC came too, sometimes. From the moment I presented the claim against the center—everything changed. Nobody comes to visit; they do not even call. They have all suddenly disappeared."

Dr. Reuven Lester, an attorney from Jerusalem, and Attorney Hen Somekh of Tel Aviv are handling a number of claims of cancer patients who worked at the

reactor, and of widows of workers at the reactor. All the cases being prepared are filled with repeated requests for information about the types of radiation the worker was exposed to up until his death, or the amounts of radiation he absorbed over the years. The answers usually come after great delay, and the information in them is incomplete or inexact.

In the claim being prepared for Leon V., Attorney Lester wrote in October 1991 to the NRCs legal counsel: "I request the following information: all the substances to which he was exposed, the levels of exposure, and his medical records from the plant."

On December 14, the NRCs legal counsel, Attorney G. Netiv, responded to Attorney Lester's request in these words: "Within the normal course of his work, the deceased did not come into direct contact with dangerous substances and was not exposed to substances such as...."

"Seven Days" was informed that after this letter, a top administrator in the NRC sent an internal memo to another top administrator, and that, among other things, this internal communication included:

"I have a letter in my possession, written to Attorney Lester by the NRCs legal counsel on the subject of Leon Vaknin, may he rest in peace. Paragraph One of the letter is serious, and I would describe it as [not reproduced]. For as you well know, this worker worked under me, and I know exactly where he worked and what substances he was in contact with. Concerning that, I am asking you to give a true report, because I estimate that this is something that will keep coming back to you like a boomerang."

In Miryam Itah's claim, Attorney Kener mentions the NRCs refusal to authorize Professor Barukh Modan's appointment as [an expert qualified] to judge the connection between the radiation in the reactor and Itah's cancer. This despite the fact that Professor Modan is a world-famous scientist in the field of radiation risks, and despite the fact that he is a former general director of the ministry of health, and that from the point of view of the need for secrecy he is somebody to whom facts can be revealed.

The lack of trust the workers feel toward the NRC management can be seen in the petition they presented to the high court of justice in June of last year—against the atomic energy commission and against the minister of labor. In this petition, the workers demand that the labor minister cancel the NRCs exemption from external inspection, inspection that exists in other workplaces where there is radiation. The workers assert that they found out only by chance that the safety regulations for radiation do not apply to the NRC, and that this was only after the NRC refused to provide to workers who had become ill information about examination results and medical records that radiation regulations would have required them to turn over.

The petition cites as an example the claim of NRC worker Yehuda Kalifa', who fought for several months before winning permission to see the contents of his medical folder and details on how much radiation he had been exposed to.

The workers' petition to the high court of justice was turned down because—after it was presented—the regulations were suddenly changed and new regulations put in place that had not been mentioned in the petition. Attorney Lester: "They played a game with us and succeeded in having our petition dropped because of a technicality. But this still does not change the basic situation at the NRC. The workers still do not trust the staff responsible for their safety, and it can be assumed that we will be presenting an updated petition to the high court of justice very soon."

None of the NRC workers dared to be interviewed for this article. Instead of answering, workers referred me to one of the passages in their petition to the high court of justice, which reads: "As long as there is no external and autonomous inspection by the ministry of labor, the ministry of health, and the ministry of environmental affairs, not a thing can be known about work safety. Today, the center oversees itself. The person responsible for safety is one of the workers at the center, who gets his orders from the boss who can fire him. The petitioners are aware of the need for secrecy, but believe that this problem can be overcome if the inspectors are appointed with the prime minister's authorization."

And the NRC workers write in conclusion, "It makes no sense for the regulations—whose entire purpose is to protect workers from the dangers of radiation—not to apply to the workplace where there is the greatest danger of all."

[Box, p 4]

The Atomic Energy Commission: There Is No Radiation

The response of the atomic energy commission: Shlomo Abramovich's article brings up material that has already appeared in the media over the last few months (the Makhtesh Katan, nuclear waste). We want to repeat, first of all, that all tests by qualified experts—from the NRC, the atomic energy commission, and the ministry of environmental affairs—have found that there are no health or ecological problems in the region; and that the Makhtesh Katan is open for hiking.

The main thing that is new in this article is the reporter's tour of the Makhtesh Katan region with an instrument for measuring radiation, and the discovery of levels of radiation that are seemingly higher than what he believes to be the national average.

In a discussion he had with the reporter, Dr. Dan Lita'i, head of the licensing and safety department of the AEC, explained to him that the levels of radiation he had "discovered" were typical for that part of the country, and that if he had taken the trouble to go to other

locations in the region, he would have found, here and there, levels of natural background radiation that were higher. The reason for this is to be found in the tiny, irregular concentrations of uranium found in the phosphates in the vicinity. It should be emphasized that background radiation like this is not dangerous to the population, and is typical of many regions in the world (like Colorado in the United States, or the granite mountains in France).

We want to emphasize at this point that the NRC's contribution to the levels of radiation in the surrounding area is minimal, and someone who is in the NRC or its vicinity all year round is exposed to about the same radiation as are residents of the region who do not ever come close to the NRC. In this context, it should be mentioned that the water in the wells in the region is sampled regularly and is clean of radioactive substances. Concerning the flow of waste water into the Makhtesh Katan, it has already been clarified that these are strictly sanitary wastes, and that the flow has been stopped.

Another topic the reporter discusses are the cases of the NRC workers who contracted cancer. It is known that close to 20 percent of deaths in the Israeli population (as in many other countries) are from cancer. The overall incidence of cancer among workers in the AEC and the NRC is no different from the national average. The NRC is very careful and thorough in protecting the safety of its workers, following international norms, and is also monitored by autonomous entities.

The article also discusses the closed area around the NRC. This area is defined by decision of the military for the needs of effective security and to prevent entrance by hostile elements, for the NRC is a declared target of these elements. In the closed area, too, there are no health or ecological problems. The Makhtesh Katan and the hiking paths are open to the general public, and there is no danger to their health or safety there.

In conclusion, we wish to emphasize the following points:

A. There is no health or safety hazard for hikers in the Makhtesh Katan. This conclusion is also supported by tests the ministry of environmental affairs has made.

B. There is broad oversight of the activities of the NRC and the safety of its workers. In the realm of safety, this is by the department of licensing of the AEC and the advisory commission for nuclear safety, which is an independent and autonomous entity that reports to the prime minister. The activities of the AEC, including those of the NRC, are overseen by the state comptroller and are under the supervision of the Knesset, like all other government activities. The area surrounding the NRC is also under autonomous supervision by the ministry for environmental affairs.

[Box, p 5]

The Groups in Danger

The International Atomic Energy Agency, together with the World Health Organization, will soon be publishing a new standard for protection from radiation. In the section that deals with "public protection" (as opposed to industrial exposure or exposure as a result of medical treatment), the standard sets the limitation of exposure of 1 millisievert per year (1 millisievert=100 milliroentgen=about 100,000 microroentgen). That is to say, figuring per hour, the new standard allows maximal exposure of 11.4 microroentgen—far below the levels measured by "Seven Days," which means: Extended exposure is likely to be dangerous.

Assuming that the levels of radiation we measured are accurate, there is a large group of people likely to absorb cumulative radiation above that standard. Included are soldiers on regular or reserve service who serve for extended periods in the region, "Mekorot" and Israel water authority, employees who work at the nearby wells of water, tour guides from the society for the preservation of nature, and inspectors from the nature reserves authority, as well as others. Women of childbearing age and pregnant women are even more limited in the amount of exposure they can safely accumulate, and according to the standard, they are liable to be harmed by levels lower than those which endanger others.

The surprising refusal of the ministry of environmental affairs to supply numerical results makes it impossible to discover on what standard the ministry's soothing declarations are based. It is also not clear how much the accumulation of exposure to radioactivity was taken into account in their tests. Accordingly, it is impossible to know whether the qualified experts of the ministry also believe that the population groups specified here are in danger.

The results of exposure to ionizing radiation (radiation that creates ions at a noncatastrophic level), are not immediately evident. The ions attack the genetic material of the cells and interfere with their functioning. The most vulnerable tissues are those where there is cell division: bone marrow, ovaries, testicles, and intestinal fluids.

Possible malignant growths as a result of radiation do not show up until from eight to thirty years after exposure. Similarly, genetic damage and birth defects are also likely to take time to show up.

The atomic energy commission's information brochure also admits that expert opinions are divided. Some believe that the danger of malignant growths, leukemia, and genetic defects exists only after exposure to high-level radiation. Other experts claim that low-level radiation also causes biological damage and is likely to cause cancer.

Environment Ministry Introduces New Radioactivity Checks

TA1906101893 Jerusalem *Qol Yisra'el* in Hebrew
0800 GMT 19 Jun 93

[Text] The Environment Ministry has achieved an arrangement with the U.S. 6th Fleet under which ministry personnel will be able to inspect for radioactivity the area around ships docked in Israeli ports.

Our correspondent Shulamit Schmerling reports that under the arrangement, the ministry will henceforth receive advance notice about the arrival of nuclear-powered ships. Ministry personnel will be able to check the ships' sewage and surrounding air and sea water. In addition, the ministry has been included in the 6th Fleet's alert program and will be notified of malfunctions of ships' nuclear reactors.

Our correspondent further reports that under a sweeping new Environment Ministry plan, the Dimona and Nahal Soreq nuclear centers will also undergo periodic radioactivity checks. The new plan also includes 6th Fleet vessels.

The plan was put together in the wake of Minister Yosi Sarid's arrangement with the Atomic Energy Commission following the discovery of radioactive sewage in Hamakhtesh Haqatan. The Environment Ministry will position independent monitoring systems checking air, water, soil, vegetation, and ground water samples in various locations.

MAURITANIA

Council of Ministers Adopts Decree on Ozone Treaties

LD0207042193 Nouakchott ORTM Radio in Arabic
2030 GMT 1 Jul 93

[Excerpt] The Council of Ministers met this morning under the chairmanship of His Excellency Maaouiya Ould Sid'Ahamed Taya, president of the Republic. Following a discussion, the Council adopted a draft decree allowing the Islamic Republic of Mauritania to join the Vienna treaty on ozone protection that was signed on 28 March 1985, and the Montreal Protocol on materials harmful to the ozone that was signed on 16 September 1987.

MOROCCO

Principal Ecological Challenges Defined

93WN0477A Rabat ALMAGHRIB in French
24 May 93 p 3

[Article by Abdelhadi Lahlou: "Constant Concern"]

[Excerpt] *The relationship between environment and economic development has acquired particular importance during this last quarter of the 20th century.*

In the field in question, great interest has been shown in that basic parameter by our country. Methods of socioeconomic analysis concerned with the environment and presenting a new policy for balanced economic growth have been sketched out as a result.

Abdelhadi Lahlou, an international expert, emphasizes in that connection that the ecological revolution will undoubtedly require a new economic and social organization on an international scale. According to him, the time required will be brief in comparison with the agricultural and industrial revolutions—it will take about 30 years to meet the challenge.

In the article below, the author considers a number of basic issues affecting both our country's economic development and its ecological balance.

Management of Morocco's Rivers

The river areas are extremely rich in resources. They also generate good economic health through the use of surface water for agriculture and drinking water for extensive urban development, the production of hydroelectric energy in particular, the supplying of sanitary water, the replenishment of alluvial groundwater, and so on.

Strong pressure to develop the river areas is leading to a plethora of environmental problems: considerable pollution, erosion, external economies due to unsuitable infrastructures or inappropriate planning measures, and so on.

The problem of the environmental implications of river ecosystems involves these three concerns:

1. What type of management is best for the economy and for an improved river environment?
2. What strategies for development and action can help decisionmakers protect the most sensitive ecological habitats along the rivers while providing for economic development that is both reasonable and desirable?
3. What are the appropriate ways and means of achieving those objectives?

Example of Water Pollution

Waste from the Fes River is broken down as follows:

1. Household pollution:
 - a) Oxidizable matter: 36,000 kg per day.
 - b) Suspended matter: 40,000 kg per day.
 - c) Nitrogenous matter: 7,400 kg per day.
 - d) Phosphorous matter: 820 kg per day.
2. Industrial pollution:
 - a) Food industry: sugar byproducts for fresh yeasts, the olive industry.
 - b) The manufacture of beverages.
 - c) The manufacture of paper pulp and paperboard.
 - d) Tanneries.
 - e) Nonmetallic ore industry.
 - f) The manufacture of electrical products.

g) Heavy metals: every day Fes discards 320 kg of heavy metals, including 150 kg of chromium, 65 kg of lead, and 40 kg of copper.

A proposal for the treatment of wastewater from the Fes River includes:

1. Infrastructures for the purification system: 300 million dirhams.
2. A water purification plant (wastewater): 300 million dirhams.

Recommendations:

1. Adopt laws banning the removal of groundwater from the Fes River's upstream drainage basin.
2. Build the wastewater treatment plant.

Drought in Morocco

Chroniclers have reported droughts occurring in Morocco in the following years: from 867 to 878, in 900, in 1020, from 1060 to 1064, in 1118, from 1323 to 1325, from 1493 to 1494, from 1519 to 1521, from 1626 to 1628, from 1651 to 1653, from 1776 to 1782, from 1815 to 1818, from 1822 to 1825, from 1944 to 1945, from 1965 to 1966, from 1980 to 1985, and the current drought.

The conference will include a report on the water deficiency in all Moroccan rivers during the critical drought from 1980 to 1985.

The lack of precipitation will also be reported, and the forecasting models used will be presented.

The economic impact of that drought on energy, agriculture, and so on will be reported.

Recommendations:

1. Expand the system of climatological and water supply measures.
2. Update studies based on information gathered over the years (the study on regulating river flow and so on).
3. Set up a system for predicting and monitoring droughts.
4. Intensify the drilling of wells in the search for groundwater.
5. Improve the management of groundwater that can provide a buffer in times of drought.
6. Continue the major effort to build hydraulic structures (including lakes in the hills).
7. Implement the results of the studies concerned with master water plans.
8. Set up interconnected systems for the supply and distribution of drinking water.
9. Encourage water conservation.

10. Take maximum advantage of situations favorable to rain tests, particularly in and around large natural and artificial bodies of water.

11. Carry out the necessary studies to determine the economic impact of those tests as accurately as possible with a view to justifying the implementation of a long-range national plan for weather modification.

12. Institute integrated management of groundwater and surface water, particularly by developing the artificial replenishment of groundwater supplies.

13. Develop the technology for capturing groundwater that is currently lost to the ocean.

14. Include wastewater in the water balance and develop the re-use of such water, with due regard for the sanitary and environmental impact of that re-use.

Current Drought Situation: Water Level in Dams on 19 May 1993 [in percentages]:

El Makhazine: 38.4; Ibn Batouta: 26.2; Abdelkrim Al Khattabi: 36.3; Mohammed V: 41.4; Idriss I: 27.6; Allal Fassi: 100; El Kansera: 32.2; Sidi Mohamed Ben Abdellah: 57.8; Al Massira: 17.8; Imfout: 72; Bin El Ouidane: 28.8; Lalla Takerkoust: 60.1; Moulay Youssef: 33.8; Hassan I: 30.2; Abdelmoumen: 44.2; Dkhila: 82.8; Youssef Ben Tachfine: 31.2; Mansour Eddahbi: 73.2; and Hassan Eddakhil: 8.3. The total was 3.07 billion cubic meters, or 32 percent of capacity (on the same date in 1992, the total was 4.810 [?4.81 billion] cubic meters, or 50.3 percent).

Desertification

Desertification is the process in which the biological productivity of arid and semiarid land declines steadily to the point that the land is transformed into desert or unproductive soil. The combined action of man and climate is the reason for the phenomenon in question. Meeting the population's growing need for food requires increased agricultural production, and the result is the intensive use of very unproductive marginal land. Hence the degradation of ground cover as the land is cleared, used for crops, and overgrazed. This results in soils vulnerable to water and wind erosion, followed by the disturbance of rainfall patterns and the encroachment of sand onto parcels of farmland and infrastructures.

Extent

Desertification in southern Morocco can be seen in the advance of sands causing the alluviation of dams, irrigation canals, roads, palm groves, settlements, and so on. ("Experimental accelerations" have been introduced in Morocco to boobytrap the sand's advance onto the road infrastructure).

It can also be seen in the silting up of dams (50 million cubic meters per year in the 35 existing dams and a total of 1 billion cubic meters out of a total capacity of 10 billion cubic meters).

Arid, semiarid, and desert areas cover 93 percent of the national territory.

Desertification is due to the following:

1. A high demand for new cropland and pastureland (overgrazing).
2. The excessive use of wood for firewood (10 million cubic meters gathered per year, whereas the maximum should be 3 million cubic meters, or 30 percent of the current level).
3. Water erosion (12.5 million hectares).

That erosion amounts to 6,000 metric tons per square kilometer per year (in the Nekor wet zone) and totals from 200 to 100 metric tons per square kilometer per year in the arid and semiarid zones.

As an example of what happens, it can be pointed out that about 4,000 years ago, pastureland covered what is now the Sahara.

How To Guard Against the Impact of Oil Slicks

Being located near shipping lanes that are frequently used by oil tankers bound for Europe from the Persian Gulf or Venezuela in particular, Morocco moved quickly and energetically following the Kharg 5 disaster to mitigate what could have been unfortunate consequences. A program of planned medium- and long-term multidisciplinary actions will be implemented.

Particular attention will be paid to multicriteria techniques used in the following scientific disciplines: hydrography, currents, meteorology, marine hydraulics, marine pollution and the presentation of forecasting models covering the impact of pollution by hydrocarbons, and methods and procedures for recovering floating hydrocarbons.

Hydraulic models of the spread of oil slicks have been developed with a view to predicting any subsequent possibility of contamination along the coast.

National Emergency Intervention Plan

The national emergency plan that is to be based on national legislation must clearly define the following: which officials are to take action, what they are to do, and where they are to take action. The second part must specify how a response to spilled petroleum is to be carried out.

The chief questions and parameters needing to be included in detail and carefully analyzed in setting up a national emergency plan can be summarized as follows:

1. A definition of the oil spread zone.
2. An evaluation of the risk of an oil spill (sources, extent, location, and so on).

3. The destination and condition of the spilled petroleum (weather and ocean conditions and the characteristics of the spilled petroleum).

4. Characteristics of the shoreline (type, biological resources, human activities, priorities for protection, and so on).

5. The organization of activities in response to oil slicks (responsibilities, communications, functioning of the plan, documentation of the actions taken, public relations, liaison with training and exercises, financing, and strategies for combating hydrocarbon spills).

6. Recovery (equipment and products, transportation, storage of the hydrocarbons after they are collected, and so on).

In Morocco it would be advisable to begin setting up a national emergency intervention plan immediately with a view to combating any future pollution caused by oil spills at sea. [passage omitted]

METAP Strategy for Second Phase Reported

93WN0455A Casablanca *LA VIE ECONOMIQUE*
in French 28 May 93 p 18

[Article signed D.M.: "METAP (Ministerial Conference on the Environment in the Mediterranean Region): What New Strategies?"; first paragraph is *LA VIE ECONOMIQUE* introduction]

[Text] Sponsored by the World Bank, the European Investment Bank, and the European Community Commission, METAP [Ministerial Conference on the Environment in the Mediterranean Region] ended last Tuesday in Casablanca. In its first stage, which started in 1990, the conference made it possible to undertake close to 60 environment-related projects.

"Determined to continue the fruitful partnership initiated during METAP-I, 16 Mediterranean countries, eight international and regional institutions, and six nongovernmental organizations met in Casablanca on 24-25 May to launch the second stage of METAP."

They thus set off for another three years, with a budget of \$31 million, three new sponsors, and three priorities: water, the urban environment, and construction capacities.

In addition, as in the previous stage, gifts will finance projects such as integrated water-resource management, dangerous-waste management, prevention and control of marine pollution by oil and chemical products, and management of coastal areas.

We should add, however, that the goal of METAP is not to finance environment-related projects, but rather to set up projects, make general-policy studies, and strengthen specialized institutional capacities.

Results and Prospects

Since its creation in 1990, METAP has thus provided over \$14 million in the form of gifts to finance 61 projects in 12 member countries. In Morocco, two studies were started in this context: development of the Martil coastal area, and the Al Hoceima national park.

Mostly, the conference provided an opportunity to evaluate the efforts made at national level with respect to the environment.

The inside courtyard of the Ben Msik Sidi Othmane prefecture, where the conference took place, housed an exhibition consisting of a series of panels illustrating the achievements of all the departments concerned.

The history of the international campaign to save the city of Fes was followed by two projects of the Casablanca Urban Agency: creation of a green belt around the economic capital, and the "Casablanca antipollution system." Following that, the projects of the Renewable Energy Development Center (CDER) were unveiled; they include in particular a 5-MWe [megawatts electric] aerial park for the provinces of Tanger and Tetouan.

Still in the field of energy, the next panel presented the national decentralized electrification program.

In a different connection, another exhibitor, the National Institute for Agronomic Research, presented the results of its efforts in the following fields: phytosanitary protection of forests and control of the "bayoud," the date palm disease.

This was followed by a presentation of the Ministry of Agriculture and Land Reform, one of the METAP beneficiaries, with a study on the Al Hoceima national park.

Continuing on their way to the large conference room, the participants were invited to learn about the Ministry of Public Works' efforts with respect to environmental

protection; these efforts are rather substantial although not much covered by the media.

A Moroccan Strategy

Finally, the booth of the Undersecretariat to the Environment drew attention because it formulated a "Moroccan environmental strategy," that was also the subject of the paper presented by Professor Chaouki Serghini, undersecretary of State at the Ministry of Interior, in charge of environmental protection.

This strategy relies on the priority orientations defined in Agenda 21, the plan of action for the 21st century adopted by the UN Conference on Environment and Development, which was held in Rio de Janeiro in June 1992.

To reconcile the right to development and the duty to protect the environment, two apparently conflicting objectives eventually formed the "central core of ecological development." In fact, the objective is to achieve harmonious development ensuring the citizens' well-being without compromising the future of the generations to come. In brief: "durable development."

In Morocco, the multisectorial management of the environment as it was undertaken on a national scale is a separate problem in itself, in view of the many players involved and the diversity of the fields of intervention. To the departments already mentioned, we should thus add Public Health (environmental hygiene), Trade and Industry (industrial pollution), Marine Fisheries and the Merchant Marine (management and preservation of our traditional fishing grounds), or again Local Communities (public health, sanitation, household waste).

In this context, the recent creation of an Undersecretariat to the Environment came at the right time to channel, in a spirit of efficient coordination, all the efforts deployed by the various sectors concerned.

RUSSIA

Siberian Regions Suffer Effects of Nuclear Testing

93WN0458A Moscow MOSCOW NEWS in English
No 19, 7 May 93 p 15

[Article by Vadim Chelikov: "Siberia: Radioactive Contamination Remains"; first paragraph is introductory paragraph]

[Text] In the early 1990s the Siberian Branch of the Russian Academy of Medical Sciences made an analysis of the sick rate among Siberia's population. Having summed up the data for the previous two decades, medics arrived at conclusions which they refused to believe at once.

According to Anatoly Babenko, head of the health protection laboratory at the RAMS Siberian Branch, it became clear that there were practically no healthy children at the Maslyaninsky and Chistoozyorny districts of the Novosibirsk Region. Life expectancy here was five-six years shorter than the average for the region: 65 years. Prevalent among the diseases were cancer in different forms and endocrinopathology.

The surveyed districts had always enjoyed the reputation of being favourable and ecologically clean. Located far from industrial plants and construction projects, they suddenly produced the entire bunch of diseases which usually appeared in conditions of powerful radiation. The explanation of this lamentable fact was found in the previously classified departmental archives.

On a vast territory from Omsk to Irkutsk radiometry was dealt with by the Berezovgeologia enterprise, which was part of the Geologorazvedka (Geological Prospecting) concern. The inconspicuous name used to hide a powerful detachment of specialists looking for uranium deposits. Their search continued even after the discovery of uranium deposits in Central Asia. In September 1949 the expeditions working on the territory of the Novosibirsk Region and the Altai encountered a queer phenomenon: the instruments intended for 10,000 microroentgen used to sweep off-scale. Instrument needles went off-scale even in places where a lowered radiation level had been previously registered. In 1949 Berezovgeologia had to fold down work before the end of the season due to the impermissibly high level of radiation. Shortly after the official news agency TASS circulated a report that the USSR had staged a test of the A-bomb at a proving ground in Semipalatinsk.

As it became known only quite recently, the first blast went off on 29 August 1949, when a hurricane wind was blowing with a velocity of 70-90 kph. The radioactive cloud which rose up speeded above Kazakhstan and Siberia, and then also over the Pacific Ocean where, on 3 September, it was spotted by a plane of the U.S. Air Force. Following this, a secret instruction was issued prescribing blasts to be carried out only with winds blowing "inside the country" so that radioactive dust

should not settle down during the passage of luminous clouds over the country's territory. The prevailing winds in Semipalatinsk are in the direction of the Altai Territory and the Novosibirsk Region. Beginning with 1949 Berezovgeologia's work became unbearable. The archives flash with entries about folding down geological prospecting operations. As reminisced by specialists, the needles of radiometers used to go off-scale for weeks after each explosion in Kazakhstan.

According to present-day estimates, the dust that settled down during the past decades has brought the inhabitants of the Altai and the Novosibirsk Region an average of 200 rem (roentgen equivalent man) per head of the population. It will be recalled that after Chernobyl a dose of 35 rem is considered to be safe if, of course, it has been absorbed during a person's entire life span.

Incidentally, Siberians suffered not from nuclear testing alone. A committee for control over the radiation situation was formed two years ago on the basis of Berezovgeologia. Specialists' very first outings with instruments in their hands to the streets of Siberian cities brought in a bumper "crop." In Novosibirsk alone over 200 "luminous" training aids and instruments were removed from 100 schools. Metal waste, written off at enterprises, regularly used to make its way into schools' physics classrooms. In one of the schools the clock with a phosphorescent face emitted a whole five roentgen. "Luminous" in the cities were bags with Georgian tea powdered with Chernobyl caesium, glass wool brought to Krasnoyarsk from the Gomel Region, and many other things.

It has turned out that in Omsk several multi-storeyed houses have been built out of crushed rock with uranium inclusions. The background in apartments ranges from 60 microroentgen an hour to hundreds and thousands. In Tomsk the background is about 500 microroentgen an hour in the area of industrial spillways into the Yenisei, whereas the trace stretches for hundreds of kilometres. Radiation in Novosibirsk is emitted by nearly all enterprises of the defence industry and, of course, by Russia's only storage facility of radioactive waste.

The problems of Siberia's radiation contamination can be resolved. But today radiometrists are out of work—there is no money with which to pay even for a helicopter, let alone the decontamination of the Yenisei polluted as it is over a distance of hundreds of kilometres.

Yeltsin Decrees Bratsk Ecological Emergency Zone

LD1605182293 Moscow Mayak Radio Network
in Russian 1700 GMT 16 May 93

[Text] By instruction of the president of Russia, Bratsk has been declared an emergency ecological situation zone. Over the 37 years of its existence, this northern city on the River Angara has turned into a major industrial center. The oversaturation of industrial giants has led to

losses which are difficult to make good. Thousands of hectares of pine forests have perished. Tens of small rivers have ceased to exist. The maximum permissible emissions exceed the norm by over 100 times.

Burial of Radioactive Waste To Cost 20 Billion Rubles

*LD1605103093 Moscow Radio Rossii Network
in Russian 0900 GMT 16 May 93*

[Text] The burial of radioactive waste will cost Russia more than 20 billion rubles. This is the conclusion reached by experts who have elaborated a program for dealing with radioactive waste and spent nuclear material. The press reports that the program is for the period up to 2005. It is proposed that the program will be financed by a special fund set up under the Russian Federation government. Most of the allocations will be directed at the reclamation of lands and water bodies contaminated by military activity.

Sea of Japan Radioactive Dumping Ban Urged

*LD1705082193 Moscow ITAR-TASS in English
0648 GMT 17 May 93*

[By ITAR-TASS correspondent Vasiliy Golovnin]

[Text] Tokyo May 17 TASS—The governors of the Japanese Fukuoka, Saga and Nagasaki prefectures called on the government on Monday to request Russia to stop radioactive dumping into sea. They forwarded a similar joint statement to the country's Foreign Ministry, the Environmental Control Agency and the Japanese Scientific and Technical Administration.

Earlier, 13 other prefectures sent a request of the same content to Russia through the Japanese Foreign Office. All of them are worried over aftereffects the radioactive dumping can have on fish and other marine edible products.

The Russian Federation had notified interested foreign states this year that the Soviet Union dumped two shut-off nuclear reactors in the Pacific areas adjacent to Russia as well as considerable quantities of their waste.

Russia has now stopped burying solid radioactive waste on the Sea of Japan bottom. However, it reported that the federation would continue to dump low-toxic liquid waste into the Pacific for some time, since the country has now industrial facilities to utilise it. [sentence as received]

International investigations have shown that this dumping does not raise the radioactive background in the region at least at the present time.

Contamination of Moscow With Mercury Wastes Continues

*LD1705080993 Moscow Radio Rossii Network
in Russian 0000 GMT 17 May 93*

[Text] The contamination of the territory of Moscow with production wastes containing mercury is continuing. The government of the Russian capital has charged the headquarters of the civil defense with collecting up-to-date information on cases of contamination with mercury.

In the very near future, Moscow authorities are planning to examine the issue of organizing special plots of land for the temporary storage and processing of products on unfinished construction sites and also on the territory of enterprises, organizations, as well as at individual production facilities that are subject to being eliminated or removed from the city's territory.

State Committee for Supervision of Radiation Safety Assessed

*934D0057A Moscow SEGODNYA in Russian No 19,
25 May 93 [Signed to press 24 May 93] p 9*

[Article by Anatoliy Shramchenko, candidate of technical sciences: "Why I Left Gosatomnadzor"]

[Text] Guaranteeing radiation safety—this is my entire life, everything that I know and am capable of professionally. I participated in the testing of the first nuclear submarines, I directed the first subunit of the radiation safety services in the nuclear navy, and afterwards I supervised the radiation safety faculty in a higher naval school and the department of radiation safety of military nuclear reactors in the Directorate of Radiation Safety of the USSR Ministry of Defense.

Following discharge into the reserve from the Armed Forces and after working another four years in the system of USSR Civil Defense organs for ensuring the radiation safety of the population, I was invited in 1990 to supervise the radiation control laboratory of the scientific technical center (NTTs) of the then USSR Gospromatomnadzor [State Inspection for Nuclear Energy in Industry].

This seemed very tempting to me, because independent regulation and inspection could become a principal turning point in all spheres of ensuring radiation safety. In fact, this meant the removal of inspection of technical aspects from the system of the USSR Ministry of Health. The Chernobyl tragedy showed where the USSR Ministry of Health was leading radiation safety. But I was very well aware of the inhuman system of all kinds of sanitary norms and rules that were still concealed from the uninitiated, and which not only did not reinforce the guarantee of safety, but objectively increased the risk of destruction in the event an accident occurred.

It was possible to work with the greatest efficiency only when a Directorate of Radiation Safety was formed in

the USSR Gospromatomnadzor. Fate did not give it even a year and a half to organize the new work—together with the USSR, Gospromatomnadzor also disappeared. It was succeeded by the Gosatomnadzor [State Nuclear Energy Inspection] of Russia, headed by Yu. Vishnevskiy.

What happened right after the appointment of Vishnevskiy has been set forth in great detail in numerous publications.

In my opinion, the key point in this extensive dossier is the fact of V. Kuznetsov's discharge at the end of 1992 from his position as director of the Moscow inspection over supervision of the safety of the research reactors of the central district of Gosatomnadzor of Russia. Just as symptomatic was the fact of the "mysterious" resignation of L. Martykovchenko, one of the newly appointed chiefs of the administration of Gosatomnadzor of Russia. There is a common feature in both discharges—sudden death. Two first-rate professionals, allegedly at their own request, were released from their jobs, even without concern for a transfer of position.

With the arrival of the new chief of Gosatomnadzor, his first deputy, and the deputy for radiation safety, all activity was voluntarily and involuntarily geared to the interests of the Ministry of Atomic Energy [Minatom] of Russia—the main subject under surveillance. This is one of the main problems of the present Gosatomnadzor—by virtue of its Ministry of Medium Machine-Building origin and the level of competence of its directors, it cannot be an independent state organ of regulation and inspection in the sphere of the safe use of nuclear power.

The directorate of radiation safety manages the inspection only of radioactive waste and some sources (not the most dangerous) of ionizing radiation. But the supervision of radiation safety in nuclear power engineering, in industrial and transport reactors, at enterprises of nuclear fuel cycle (YaTTs) reactors, and at military installations is hidden in the depths of numerous Gosatomnadzor directorates.

In my own laboratory in the scientific-technical center of Gosatomnadzor, I conducted research and study on problems of regulation in the sphere of radiation control at enterprises and at nuclear electric power stations (AES). It became quickly evident that uranium mines and radiochemical plants were outside the scope of "interests" of the leadership of Gosatomnadzor of Russia.

One cannot help but be especially troubled by the total "unity" of Minatom and Gosatomnadzor in concealing the causes and radiation consequences of the last accident at the Leningrad AES. Available documented data of radar observations of the accident's radioactive discharge into the atmosphere indicate readings that are appreciably higher than those announced by Minatom and Gosatomnadzor. It was known even before the accident that in soil tests in the zone of observation of

the Leningrad AES over a period of one and a half to two years the kind of increase that was observed in the content of radionuclides indicates the possibility of above-norm radioactive discharges into the atmosphere.

All of this is passed over in silence in the press release published by the state commission on investigation into the causes and consequences of the accident. S. Adamchik, a representative of Gosatomnadzor, headed the commission. In an effort, as the saying goes, to obfuscate, the press release was made not only difficult to understand by overloading it with absurd technicalities, but even undertook an ingenuous substitution of the units of measurement of the strength of the dosage of gamma radiation with other units. As a result, known dangerous levels of radiation on the accident premises of the AES began to look numerically like the harmless levels of radiation outside the accident premises and in the AES itself.

Also not called for were the 1990 materials evaluating the conditions for ensuring radiation safety at the Siberian Chemical Combine (SKhK). Yes, yes! The very same combine in Tomsk-7. But what about Gosatomnadzor of Russia? As before, it held an unconvincing and not very clear position. The problem is almost anecdotally reduced to the fact that vessels can explode if they are not provided the necessary cooling in time, and if the necessary safety valve is not opened. Gosatomnadzor is silent on the true assessment of the radiation situation.

In the meantime, the Tomsk-7 accident provides many reasons for concern. From materials of 1990, which have already been mentioned. Gosatomnadzor knew that there was an oil refinery within the boundaries of the sanitary-protective zone (with a radius of about three kilometers) of the radiochemical plant that blew up. It was also known that several rayons of the oblast seat of Tomsk are in the "observation zone" of the Siberian Chemical Combine, and consequently, also in the 30-kilometer zone of the accident, where a number of restrictions are being introduced and where there is a requirement for the implementation of a plan of measures for protection of the population, including evacuation.

These are gross violations of the requirements to guarantee radiation safety. But at the moment of the explosion at the Siberian Chemical Combine, everything remained as it was. After the accident, Gosatomnadzor would have remained quiet about what happened if at the time of the accident the wind had caused a radioactive trace to reach the oil refining plant or the residential quarter of the city of Tomsk-7 and Tomsk, the seat of the oblast. Even according to the data of the official publication of the radiation situation, the refining plant would have had to shut down and the population of the city evacuated, inasmuch as the annual dose of radiation of the population would have exceeded 0.5 rem.

God continues to protect us, turning the wind in a safe direction (we remember the Chernobyl AES, Leningrad

AES, and today's Tomsk-7)! Is it on this that the Gosatomnadzor and the Minatom of Russia it supervises are relying?

There are an enormous number of settlements and industrial facilities throughout all of Russia that are in dangerous proximity to AESs, research reactors, and YaTTs enterprises. But virtually no measures to eliminate or reduce this danger are employed anywhere. This is a very grievous fault on the part of Gosatomnadzor and Gossannadzor [Committee for Supervision of Nuclear and Radiation Safety] of Russia.

I am confident that Gosatomnadzor is being prevented from being objective by corporate and Minatom lack of interest in disclosing shortcomings of its work leading to accidents. Radiation safety always was and remains Minatom's Achilles heel. Gosatomnadzor of Russia, under its present leadership, is incapable of implementing regulation and inspection in the sphere of the safe use of nuclear energy.

I understood the complete impossibility of normal work in the NTTs of Gosatomnadzor of Russia when they point blank began to reject my studies on requirements for a system of radiation monitoring in an AES. I signed a statement about resigning at my personal request. This was in the summer of 1992.

By the summer of 1993 the number of specialists with the necessary qualifications in all of the structures of Gosatomnadzor turned out to be absolutely inadequate to resolve the tasks assigned by the president in directive No. 224-RP of 2 April 1993, which was adopted in connection with the accident at the city of Tomsk-7.

It is time to stop this degradation. That is why it seemed necessary for me to leave Gosatomnadzor myself, without awaiting the fate of my colleagues.

Parliament to Consider Program to Mitigate Urals Radiation

93WN0456B Moscow MEGAPOLIS-EXPRESS
in Russian No 20, 26 May 93 p 13

[Article by Lidia Malash: "Mayak' Kills, But Cannot Be Killed"]

[Text] The Russian Parliament's Committee on Ecology discussed a draft state program on improving the radiation situation in the Urals region. The expenditures for the realization of this program in 1993-1995 will comprise 7.5 billion rubles (R).

Chernobyl has become the symbol not only of the catastrophe of the century, the greatest crime against mankind, but also of the removed seal, behind which the secrets of the totalitarian regime were hidden. Today it is becoming clear that we have had so many big and little Chernobyls that almost half of Russia may be defined as an ecological disaster zone. Moreover, the accidents and catastrophes are continuing. The past gives a harsh

reminder of itself. The scheme of self-destruction of mankind, as a rule, is very simple: People create "something," supposedly for defending the state against a foreign enemy. They develop and apply the most dangerous technologies of military production in order to strengthen the country's defense capability. Sooner or later, it becomes clear that military production really does kill. But it kills primarily its own, and not the "foreigners."

The Chelyabinsk production association "Mayak" is one such defense enterprise. The products which it produces are still, to this day, a matter of secrecy. Up until recently it was also a secret that in the 40 years of its existence "Mayak" had accumulated over one billion curie of radioactive waste, that a territory of 800 square kilometers had been subjected to contamination, that around 450,000 residents of the region had been exposed to radiation, and that 40,000 of them had received super high doses of radiation.

The first major ecological catastrophe in Chelyabinsk was clearly provoked. In 1949-1956, radioactive industrial by-products were dumped into the Iset and Techa Rivers. The flood plains of these rivers are now so heavily contaminated that a dose of radiation which workers at a nuclear power plant usually get in a year may be received here in only one hour.

The second catastrophe was the result of an accident: In 1957, one of the "burial sites" blew up. Up until 1970, "Mayak" had continually emitted its toxic technological waste into the atmosphere. It commits this sin even today, poisoning the water reservoirs, killing nature and people. The residents of 13 administrative rayons and two cities are literally breathing plutonium. Thousands of people are sick with chronic radiation sickness and leukemia. The men here live an average of 64 years, and the women—67. In the opinion of a specialist at the Institute of Atomic Energy in the city of Obninsk, Yuri Yershov, "Mayak" is a place where one should always expect a major radioactive catastrophe. But for now it cannot be shut down. And if this does happen someday, it would still take almost 100 years to rehabilitate the zone.

The question also consists of the degree to which "Mayak" should be rehabilitated. The Americans, for example, want to turn the contaminated territory surrounding their former "defense enterprise" into a beautiful park. The program is anticipated for 50 years, and an outrageous sum of money, in our opinion, has been allocated for this purpose—\$150 billion. We, of course, in view of our poverty, need something simpler. For example, to develop technical structures which reduce the emission of radioactive waste into the atmosphere, to clean up the contaminated territory as much as possible. But most importantly—if even "in retrospect"—to repay the debts to the people who are still alive. We can do this under one condition—by adopting a special state program on the Urals region. Urals residents have been waiting for this for many decades, and their patience is

not without end. In the opinion of the administration of Chelyabinsk Oblast, if the population is not given real help soon, a social upheaval is possible. Appeals are already being heard for a blockade of "special facilities" which engage in the development of nuclear weapons and their destruction.

"We Know Now Where the Water Flows"

That is what the deputy chief engineer of "Mayak," Yevgeniy Drozhko, said. The discussion centered around how to conserve Lake Karachay, which thanks to the military industrialists has become a primary source of radioactive pollution of the atmosphere. It contains around 190 cubic meters of highly active nuclear industrial waste. The lake is connected with underground waters, and therefore it is necessary to close off not only its water basin, but to cover over the bottom. To make Karachay impermeable is not an easy task. And it is not even a question of the fact that there is no special equipment and not enough money. Specialists must study the geology of the area, its tectonics. This is why Drozhko, almost with pride, made public his "discovery."

"A unique hydrochemical problem." That is how the vice president of the Russian Academy of Sciences and chairman of the Interdepartmental Commission on Safe Burial of Radioactive Waste, Academician Nikolay Laverov, described the problem. Without scientific developments, without involving first-class specialists, it is impossible to restore the ecological health of the region. However, significant allocations are needed from our country's science in order to accomplish this. An extensive prospective state program is needed. Yet there is no money. The plan for emergency measures will "stall," if for no other reason than the fact that the necessary funds have not been forthcoming for over three months now. And science itself has long been on starvation rations. Laverov noted that it is very difficult to retain specialists in uranium. Bare enthusiasm in our time is already impossible.

R600 million have been allocated to "Mayak." What will this money go for? For the rehabilitation of the contaminated territory or for the creation of safe new production technology? Specialists differ in their opinions of what is better in this situation. Some of them even believe that the state program on improving the radiation situation in the Urals region may be ratified only after the program for development of the production association itself has been publicized. At "Mayak" they have finally understood that it is time to correct the situation: Last year, they reduced the burial of liquid waste by 17 percent, and stopped production on development of weapons plutonium. However, the radiation situation continues to remain extremely dangerous.

We May Have Doubts, but It Is Too Late

Everyone is awaiting the Urals program. But, unfortunately, there is no law which would ensure radiation safety. And there is no law because a serious scientific

workup of the problem has not yet been performed. What we have is a vicious circle. As a result, people suffer. But how, by what criteria, should compensation be paid to those who have lost their health because they lived on the contaminated territory? The developers of the draft program followed the path which Goskomchernobyl [State Committee on Chernobyl] Chairman Vasiliy Voznyak defined by the formula "in the muzhik [peasant] manner, but dictated by necessity." Certain measures were simply transferred from the Chernobyl law, and these proposals were introduced through the President of Russia for review by the Supreme Soviet back in November of last year. The document passed all coordination procedures and expert evaluations, and bore the visas of 15 ministries, departments and managers of territories. But then the next political changes came—the change of government. The draft program was discussed by the Russian Council of Ministers on 27 January, and then sent back for re-working. Now, in its new form, it has once again appeared within the walls of the White House, and parliament will have to give its verdict. Specifically, it must officially confirm that a sum of R4.2 billion will be allocated for payment of monetary compensation to the population, that R1.586 billion will go for medical observation and treatment, and that the state will give R3.2 billion to provide the people with housing and municipal services.

In the opinion of members of the parliamentary Committee on Ecology, much in this document remains unclear. The deputies like order, but from the draft program it is unclear who is the specific contractor, who is the executor, and what the terms for fulfillment of the work are. Yet in this situation it is simply impossible to delay. At the same time, the Supreme Soviet has found itself, in the expression of one of the deputies, "with its back up against the wall." The regions are in favor of this program, the ministries and departments are in favor of it, the president is in favor... What can the parliament do? After all, the people's elected officials cannot end up in the role of Cerberus, especially since the discussion centers primarily around socio-economic aid. At the same time, even without supreme legislative approval, the program has already been put into operation, and is being financed. The first monetary revenues went to the region back in August of last year, and the second—in March of this year. Public councils have been created locally, which help the executive authorities implement the outlined work. Hospitals, schools, and residential houses have already been built. Why, then, do the deputies have a certain degree of doubt regarding the draft of such a necessary and long-awaited document? Perhaps parliamentary lobbying plays a role here, which has become widespread in the deputate environment. Or perhaps this is the "Chernobyl syndrome." The money also supposedly went for a program then, but as it turned out—no one knew where it went.

Yablokov Reviews Efforts to Address Regional Environmental Issues

93WN0456A Moscow KOMSOMOLSKAYA PRAVDA
in Russian 5 Jun 93 pp 2-3

[Interview with Aleksey Yablokov, advisor to the President of Russia, conducted by Tatyana Korsakova in Moscow, the Kremlin: "Do Russians Want War With Nature?"]

[Text] Aleksey Yablokov, advisor to the President of Russia, comments on the map of areas of ecological disaster in the country, as compiled by KOMSOMOLSKAYA PRAVDA readers. [Boxed material]

Zones of Ecological Disaster as Reported by KOMSOMOLSKAYA PRAVDA Readers

Bratsk, Zagorsk (radioactive waste). Krasnoufimsk (remnants of radioactive ore). Severodvinsk. Saliger. Voronezh Water Reservoir, Nizhniy Tagil, Perm Oblast, cities of Gubakha and Yermentau in Tselinograd Oblast, Penza, Arkhangelskaya Oblast, Mezenskiy Rayon—nuclear waste. Valakovo in Saratov Oblast, Volsk in Saratov Oblast—chemical weapons. Two radioactive islands on Ladoga (experiments from the 50s). Krasnovishersk (Vishera River). Chernobyl zone, Prokopyevsk in Kemerovo Oblast, Kareliya, Medvezhyegorsk (radioactive area, no purification structures). Ufa—dioxin. Voronezh Oblast, village of Kashirskoye (radiation). Sterlitamak (chemical waste). Salavat, Chelyabinsk region, Kostroma GRES [State Regional Electric Power Station], Kirovo-Cheletskiy Chemical Combine, Odessa, Northern Urals (nuclear testing). Lake Onega. Tomsk (radioactive waste storage). Perm Oblast, village of Sosnovka (nuclear explosion), Novomoskovsk in Tula Oblast. Estonia, Sillamyaz (dumping uranium ore by-products into the water), city of Volzhskiy, Azov Sea, city of Vilnovo-on-Danube—Ukrainian Venice (Odessa Oblast), city of Ilichevsk in Odessa Oblast (construction of oil shipping port is ruining the Black Sea), city of Ilekhs in Orenburg Oblast (gas deposit). [end boxed material]

Correspondent: The time for talking about ecology has passed. Aleksey Vladimirovich, could you tell us what actions the president and the government are taking to solve the ecological problems?

Bratsk. When They Were Building, They Did Not Think About Ecology.

Yablokov: After his meeting with Clinton, the president made a special stop in Bratsk to look into ecological problems. He returned from there in an agitated state and said: "We must do something immediately." Literally in two weeks, a special government decree on Bratsk was adopted.

Correspondent: And who will monitor its implementation?

Yablokov: You and I will monitor it. The people. However, if the people there, in Bratsk, only shout, nothing will come of it. But if they appeal to the court...

Correspondent: That is the best advice.

Yablokov: There is simply no other way. I have already become hoarse from shouting that they should not write to the president. If you have proof that your health and your property has been damaged because of a certain enterprise—appeal to the court, and the court will be forced to take your side, because the laws are on your side.

Correspondent: And what can the people accomplish through the court? The conviction of those guilty of pollution?

Yablokov: Conviction does not apply here. After all, this is not a criminal case. Compensation of loss—that is the question here. If, because of the fact that I have developed an allergy or chronic pneumonia, or some other illness (and I appraise this in tens of millions of rubles, or perhaps even hundreds of millions of rubles), I bankrupt a plant with my claim, then my case is won.

Correspondent: Do you know of one such case when there was a judicial claim related to an ecological problem which had a successful outcome?

Yablokov: There were several cases. I might add that, at my request, instructions are currently being prepared for citizens and public organizations on how to defend their ecological rights in practical application. This "flyer," if you can call it that, will also contain advice for judges. Otherwise, they say, "we are not informed, we do not know how..."

If need be, we will publish this brochure.

Zagorsk. Radioactive Waste.

Yablokov: Here is the general problem which must be solved. There is an enterprise for burial of low-radioactive waste, "Radon," located here. I might add that it operates fairly well. Yet today this has become expensive. Contracts are no longer being concluded, and there is a danger that enterprises will begin to bury the waste wherever they please. It is expensive to pay "Radon,"—let us present the question of subsidies to the Moscow Soviet.

Severodvinsk. Atomic Submarines.

Yablokov: The president also visited here. In general, he took a comprehensive tour. What is the problem here? The city itself is clean, but it is a city which builds atomic submarines. There is a collection of atomic submarines here which are to be dismantled. What to do with the radioactive waste? There is no burial site.

Where to develop it? On Novaya Zemlya? On the Kola Peninsula? The authorities of Arkhangelsk Oblast and Murmansk Oblast both flatly object, according to the

English saying: "Not in my backyard." I am ready to bring them all together—just so they will come to some decision.

Both we and the Americans have accumulated many weapons. Who is to blame for developing such strict military doctrines? Now it is difficult to say. Each one made his contribution to the arms race.

The Americans now have a moratorium on nuclear testing. It will end on 1 July—or will not end. Naturally, the behavior of our nuclear scientists also depends on this. If the Americans go back to testing bombs, then our people will also have to "improve" new models of weapons. The President of Russia is speaking out on this matter with an address.

Nizhniy Tagil. Zone of Ecological Misfortune.

Yablokov: Even then, at the USSR Congress of People's Deputies, we dreamed about the fact that we must necessarily declare the dangerous region an ecological disaster zone. The Russian legislators substantiated our position, and the law on environmental protection contains a special section on ecological disaster zones. Rather, the legislation has introduced two categories: The zone of ecological disaster and the zone of ecological misfortune. That means, first Kemerovo Oblast filed the application: We want to be such a zone, then Cherepovets, then Nizhniy Tagil. And then, when they took a closer look at the law, they saw what follows this. And what follows is the closure of all the industrial enterprises with the exception of those which ensure the life of the population, that is grain combines, dairy plants, etc.

I say: What are you going to do when they close all the industrial enterprises in Nizhniy Tagil?

Now Nizhniy Tagil is the first territory which has undergone evaluation by the state ecological experts. And this expert investigation has stated: Yes, this is a zone of ecological misfortune. And now the documents are being formulated so that the president may formulate all this in his edict. This will be done right away. All this will mean that in Nizhniy Tagil the environmental protection laws will be much more strictly enforced, laws which are not strictly enforced anywhere in our country.

Correspondent: Once again, who will control this? Will a team come from Moscow?

Yablokov: There will be permanent commissions from Moscow, the local environmental protection service will be strengthened, and fines will be collected without any leniency... After all, the fines, as a rule, are usually forgiven. Because otherwise these enterprises would have to be closed, or would become non-competitive.

Well, perhaps, in some places in Moscow it is still not too bad to live. But in the places where ecological problems are of primary importance, there the local authorities must not forgive anything. They will receive their full measure, and they will have a treasury. Let the enterprises go into debt. Let them get preferential credits

somewhere in order to get out of this situation... That is how the economic mechanism will work.

Penza. The Secrets Are Exposed—The Problems Remain.

Yablokov: This is such a green, good city. But 15 kilometers away is Penza-19, one of the most secret cities. There is a huge machine building enterprise there. Today it has largely undergone conversion, but there are zones here where the dismantling of our nuclear weapons and certain missiles was performed. The talk about the fact that there is radioactive contamination here is not true. The warheads arrived here fully packaged. There is no contamination, nor has there been. They assembled them with jeweler's precision. And now they will dismantle them in this same place.

Only these same hands can do all this safely.

Balakovo. AES [Nuclear Power Plant]... on the Beach.

Yablokov: I was also in Balakovo. It is a bundle of problems. The Volga, the AES, and many chemicals. The Volga is generally in a terrible state: Ten percent of it consists of sewage water. We will start with that. (It is true, we do have some rivers which are worse: The Northern Donets, for example, is 40 percent sewage water; Kuban—30 percent, if we count as sewage that which drains off the rice fields). And so, the Volga. Of course, we should not have built this AES...

Correspondent: Within a kilometer of the riverbanks...

Yablokov: We should not have. Really, it turned out awkwardly. But—they are working. And although they have many small improprieties, still there are no big ones. We will hope that there will not be.

According to the new environmental protection legislation, such plants should not be built near large waterways of national importance, or near recreational areas. However... Our government spit on this legislation when it allowed the Ministry of the Atomic Power Industry to continue to act in this direction.

I might add, getting back to the courts... Recently even the Constitutional Court took an ecological claim for review. The Social-Ecological Union appealed to it with a request to clarify the following: In adopting its decision in December of 1992 regarding the development of nuclear power production, the government violated our inalienable constitutional rights. The court took the case, and we will see how it reviews it.

Volsk. Chemical Weapons.

Yablokov: Yes, I understand the concern of residents in at least five regions of the country where chemical weapons are located, and which must be destroyed. But the problem is a huge one. We have accumulated at least 40,000 tonnes of chemical weapons... To store them is dangerous, even more dangerous than to destroy them! No one thought that these chemical substances would be

stored for 40-50 years. The walls of the containers are very thin, and are beginning to be eaten away by rust...

Where to destroy these weapons? Naturally, where they were produced, where the people know how to do all this. In a number of cases—and this is also well known—there is great profit to be had from destruction of weapons.

Correspondent: And so, are they not giving them up?

Yablokov: Here you are, the people write: We will not give them up! Mordovia has adopted the decision. And Udmurtiya...

In April, the president, taking into consideration this entire tense situation, signed his own special announcement about the destruction of chemical weapons, where he presented four principles which must be adhered to and which he as president guarantees. First: Ecological safety of the population. Second: Social development of the territory, and then application of the latest technologies. An ecological expert investigation. And so forth.

And these comrades in Chuvashiya, Udmurtiya and Saratov Oblast must now stop and think: Where can they get trillions and trillions of rubles? From here. And now this is our business: To do it in such a way—according to science—so that this would be at an acceptable level of safety.

Correspondent: And what about the population—did it not respond to the president's address?

Yablokov: No.

The Chernobyl Zone.

Yablokov: The conception of living on contaminated territories is changing. After a thorough investigation, it became clear that the contamination was spotty. From all this, a very simple thing follows: The people do not need to be relocated, but they must be made healthy, and the territory rehabilitated.

Correspondent: Do you think that is possible?

Yablokov: Yes. And this would be cheaper for the state.

Correspondent: To plant trees, or what?

Yablokov: To remove the "dirty" ground.

Correspondent: Why, it has already gone very deep.

Yablokov: No. Let us see how deep it has gone. Sometimes very deep.

Correspondent: Why, all of this is in the arable layer...

Yablokov: That means the arable layer must be removed. This is a big job, but it is still cheaper than resettlement. And then: You know such a situation when people bring in radioactive dirt on purpose? In order to get "burial" money?

I might add, I have told you about the spotty contamination of the territory, but we also have data on "spotty" contamination of people. Now we have the opportunity to see how much radiation each person has stored up. By their tooth enamel. And we must pick out those people who have really taken a lot and treat them as soon as possible, before they get some serious illness.

Prokopyevsk, Kemerovo Oblast. For Now, The Changes Are For The Worse.

Yablokov: It is interesting that my political activity began with Prokopyevsk. I was still a "peaceful" corresponding member of the Soviet Academy of Sciences, engaged in the theoretical aspects of environmental protection... I saw everything and I know. The situation was frightening.

Correspondent: Has anything changed since that time?

Yablokov: Not for the better. Today they also want to get the status of a zone of ecological misfortune.

Ufa. Dioxin.

Yablokov: This really is a disaster. This in general is a complex situation with monitoring, and with the observation of the state of the environment. We do not have adequate funds to clarify the degree of danger of one type of pollution or another.

Dioxin is a very indicative thing. In order to perform one analysis for dioxin, it takes about \$1,000. It is a very complex chemical analysis. Dioxin is one of the most terrible poisons. The most minute quantities of it cause birth defects. And we do not know where it is located!

And so, about dioxin. The Germans helped us. They took a water sample from the North Dvina in Arkhangelsk—the standard for dioxin is exceeded by many times! Where is it coming from? Upstream there is paper production, chlorination, everything from which dioxin arises. Therefore, our problem is not "Ufa-dioxin," but "dioxin" as such. Now we are creating an extensive government program on dioxin. We will know the places, we will include dioxin in the system of observations, and we will take samples from the major rivers at least once a month.

Northern Urals. Nuclear Testing.

Yablokov: This is news to me. We will have to focus attention on this. Although according to the map, there really is a high concentration here. We are setting the following task for ourselves: To look at and perform inspection of all sites (there are 93 of them in Russia and 115 throughout the former Union) of underground nuclear tests, those conducted for so-called "peaceful purposes."

Tomsk-7. The Situation Does Not Change, and This is Strange.

Yablokov: Here is an interesting thing about radiation. It changes with time. If it is correct according to Tomsk-7,

that there was niobium there, then soon there must be half-decay. Yet every day I look at the summaries with alarm. They say: "The radiation situation has not changed." What do they mean it has not changed? It must change if the radiation background is defined by those components which were announced—niobium and other "short-lived" products... But two months have passed. In 60 days the radiation background should have changed significantly, but it did not change.

And here is another thing I want to say about Tomsk-7. Somehow I never thought of this before, although I knew that they were pumping radioactive waste containing plutonium underground under pressure, and then plugging these holes... And just imagine: Huge pressure. Pipes, joints. A slight, tiny displacement. Yet we know that technogenic earthquakes are very widespread here... Our last meeting of the Council on Ecological Policy was devoted to the effect of industrial accidents and catastrophes on the ecological situation and the health of the population. Three industrial ministries and Gostekhnadzor [State Committee on Technical Control] presented speeches. And they presented data concerning the fact that the number of technogenic earthquakes is increasing. And so... we should look into this version.

Sea of Azov. One of the Most Polluted Places in Russia.

Yablokov: We would have made a program on the Sea of Azov long ago... But we cannot come to an agreement with Ukraine! Ukraine is excited. It says let's do something, let's do something. Yet this is at the level of the people living there, but not the rulers. After all, Ukraine is the only state in the CIS which has not signed the inter-governmental agreement on ecology. This is impossible to explain. When Yuriy Shcherbak was the minister there (we had good relations with him), I asked him: "Yura, how can this be?" "Well, you know..." he would hesitate. "But we will surely conclude a joint bilateral agreement with you!" All right. And where is it? We sent them the draft of a bilateral governmental agreement at the end of 1991...

The Sea of Azov is one of the most terrible disasters... There is not only pollution there—there is generally less water, because the rivers are being taken for irrigation.

Tula Oblast, Novomoskovsk. Industrial Pollution.

Yablokov: According to the initiative of the Ministry of Environmental Protection, Tula Oblast has been selected as a site of joint action. The Germans also had such regions: The Ruhr, Northern Rhine-Westfalia...

Correspondent: Thank you, Aleksey Vladimirovich. According to the list, I believe, that is all. Or rather, it is impossible to talk about everything. But one more question. We are having this conversation today on the birthday of Paustovskiy, the 101st anniversary of his birth... Konstantin Georgiyevich was perhaps the very first writer who began speaking strictly about ecological problems. Then many others emerged on the scene.

Have they been able to get through to people? Has ecological awareness changed?

Yablokov: Of course. Much has changed. And radically. Although... I can analyze the president's mail. In a month he gets several thousand letters. Different ones, dealing with different problems. Schools, social security, defense... And, if you can imagine, ecology, environmental protection, is in thirteenth or fourteenth place in the public consciousness. In two years, the attention to this question has sharply declined.

Correspondent: Yet our readers—according to the results of the survey—have ranked ecology in first place.

Yablokov: You have very well-educated readers!

St. Petersburg, Smolensk Nuclear Developments Reported

934E0865B Moscow *PRAVDA* in Russian 9 Jun 93 p 3

[Reports by correspondents Nikolay Volynskiy and Viktor Artemenko: "AESes: Leningraders Are Not Boasting, and Smolenskites Are in Doubt"]

[Text] ST PETERSBURG. A commission from IAEA [International Atomic Energy Agency] worked for almost two weeks at the Leningrad AES [nuclear electric power station] in Sosnovyy Bor. It made a careful study of 327 different incidents and breakdowns that have occurred at the AES since 1982 when it reached full capacity. Members of the international commission concluded that in all cases the plant's personnel had correctly assessed the breakdowns and accidents and taken timely steps to eliminate the causes and consequences.

The commission had high praise for the operational quality of the Leningrad AES and called it the safest one in Russia. But isn't it true that Chernobyl-type reactors are being used there?

"Yes, that's true," said V. Lebedev, the plant's head engineer. "Since 1986, however, we have worked hard to radically improve operational safety."

The only thing that is giving the nuclear power workers a headache is the fact that local authorities plan to build a new petroleum transshipment terminal near the AES. This closeness poses the threat of considerable troubles for the plant and, consequently, for the population of Leningrad Oblast and all of Europe as well.

SMOLENSK. Specialists think that nuclear power may make Smolenskites rich. Among the oblast's deputy corps a prospectus is circulating, with illustrations and charts and quotes from the report titled: "Proposals on the Construction of Smolensk AES-2." Its authors offer a completely new type of reactor providing a 100-percent guarantee of ecological safety.

The AES-2 will make it possible to establish cheap, preferential rates for the use of electricity by household

consumers. Any surplus can be sold not only to neighboring oblasts but also to other countries for hard currency. It will also be easier to cope with a number of social and demographic problems. There are already thousands of potential unemployed persons in Desnogorsk, the satellite city of Smolensk's power engineering workers. The new AES will provide jobs and make it possible to expand housing construction.

The optimism of the planners and the enticing prospects are coming up against the public's apprehensive attitude toward nuclear plants. The final decision will be made after broad and comprehensive discussion by the public. So it is still questionable whether the ambitious project, which would enable Smolenskites to enter the 21st century well supplied with energy, will come to pass.

Readers Cite Instances of Radioactive Pollution

93WN0465B Moscow ROSSIYSKIYE VESTI
in Russian 11 Jun 93 p 4

[Articles contributed to Operation "Radiation"]

[Text] We have received the first responses from readers and public ecological organizations to the appeal by "Retsept" to establish a complete bank of information on past and possible instances of radioactive contamination of the environment (ROSSIYSKIYE VESTI, No 96). Operation "Radiation" is continuing. We are interested in eye-witness accounts of the burial of radioactive wastes, of accidents at nuclear facilities and installations, and of cases of careless storage and misappropriation of radioactive materials. These communications allow us to conduct publicly open monitoring of the radiation situation in the country, attracting the attention of the corresponding state bodies and the public to these problems.

"People Must Not Be Forced to Live in a Nuclear Home," by N. Mironova, coordinator of the "Nuclear Safety" movement, Chelyabinsk

It is difficult to overstate the importance of the problem raised by "Retsept." May God grant you the strength to take a sufficient number of steps along this road before someone forces you to stop.

The things that were done by the Ministry of Atomic Power and the Ministry of Health in the Urals can be compared only with Stalinist genocide. The criminal actions against morality and humanity committed here are just as serious as those addressed in Nuremberg. But there is little time to be digging into the past, because the present is even more dangerous and significantly more responsible for the effects it has upon the future.

Mountains of weapons have been forged in our country, and they are now playing an increasingly active role in "hot spots" in Russia. Obviously the critical mass has been exceeded. God forbid that this wave will engulf our nuclear potential.

Our task is to reveal the full antihumanitarian nature of not only the use but even the production of nuclear

weapons. It is precisely in the production stage that practical use of these weapons against the peoples of our country occurs. This happens through exposure of people to radioactive wastes dumped into the environment at the stage of weapon production, through the consequences of nuclear explosions carried out in the testing stage, through overexposure of personnel and soldiers during the stage of storage and salvage of nuclear weapons, and through the effects of so-called peaceful nuclear explosions that had been criminally permitted on Russian territory by the former Union government. Nuclear uranium and plutonium technology is extremely dirty and dangerous. Its danger continues into the future, since radiation exposure weakens the immune system and distorts genetic codes.

Nuclear industry is insatiable. It requires increasingly larger capital investments, and material and human resources. Just in terms of capital outlays alone, 30 times more must be invested today than 20 years ago in freely convertible currency (dollars) to satisfy the technical needs of nuclear power plants. Things have gotten even more expensive in the fuel cycle in regard to storage and handling of the large quantity of acidic highly radioactive wastes.

Can the population be excluded today from resolving the issues of its future coexistence with nuclear industry, can it be passed over, can its mood go unnoticed, can the results of referendums be ignored? All of the people cannot be forced to live in a nuclear home. We will never become accustomed to having our children die as sacrifices brought before the nuclear altar.

All technology must be socially acceptable: Only this gives it the right to state financing, to the support of taxpayers, who are the ones who form the assets of the state. Social programs, both medical and educational, are also financed from this same pocket. And when the state is unable to find the money for social protection, but offers interest-free loans for the construction of the Southern Ural Nuclear Power Plant (134 billion rubles, or 10 times more than the cost of the state social program for the Ural region), the causes of this behavior by the government, its common sense and the influence of political and military groupings upon it naturally come into question.

"Can Catastrophe Be Predicted?" by N. Novgorodtsev, Tomsk

In July 1984, 2 years before the tragedy at the Chernobyl NPP, shop foreman Aleksandr Krasin had a nightmare about an explosion at the fourth power unit of the CNPP. Krasin didn't say anything about his dream to the power plant's leadership—he didn't want to end up in a mental hospital. But what if he had attracted attention to his dream? It is said that dreams whose content is revealed never come true....

Two such accidents that never happened are described below. On 12 February 1992 SOVETSKAYA ROSSIYA

published an article by I. Zhukov titled "Alarm Predicted," which made references to the "St. Petersburg departments" that ridiculed with relish the unsuccessful forecasters, calling them "publicity-seeking UFO watchers," and asserted that the leadership of the Leningrad Nuclear Power Plant was intending to go to the procurator about the alarming rumors spread by K. Butusov, the leader of the team of UFO researchers. The interesting question is this: How far did the leadership get before 24 March, when the third power unit of the Leningrad Nuclear Power Plant underwent an emergency shut-down, in which radioactive products were released into the atmosphere?

Note that information about the forthcoming accident was made public, the most persistent public attention was directed at it, and the accident did not occur at the predicted time. And the fact that it happened later on anyway permits the suggestion that attraction of attention to it "forced" it to proceed according to a "milder" scenario. We find confirmation of this suggestion, which appears strange at first glance, in an analysis of the Tomsk accident.

The Siberian Chemical Works, which produce weapon-grade plutonium, are located in the city of Tomsk-7, less than 30 kilometers from the oblast center of Tomsk. The accident that occurred in 1993 in the radiochemical plant of these works caused the entire world to shudder: "A second Chernobyl!" the newspaper headlines shouted. It was soon revealed that the newspapers had overreacted somewhat, but who is about to throw stones at them, considering that everyone remembers the criminal way in which the scale of the Chernobyl catastrophe was concealed, causing people to mistrust official information for a long time to come? And besides that, many still have memories of the terrible rumors about an impending superlarge accident at the Siberian Chemical Works.

Beginning in October 1989, Tomsk was literally engulfed by a wave of hysteria regarding an impending nuclear explosion at Tomsk-7. The local newspapers published numerous articles on this topic.

These rumors did not circulate in Tomsk alone. I personally heard them in Moscow at the "Bioenergoinform-89" conference in fall 1989 from Eduard Yermilov, chairman of the Nizhegorod section of the Commission to Study Anomalous Phenomena under the All-Union Council of Scientific and Technical Societies, who reported that according to information received by the commission, Natalya P., a medium from the city of Pavlodar, who cited "extraterrestrial sources," prophesied a grandiose explosion in Tomsk (10 Chernobyls!).

The date of the impending catastrophe was invariably set in April 1990, although the date of the Tomsk explosion was predicted in Novosibirsk as April 1993. Careful research on the sources of the rumors, which we conducted in late 1989 and early 1990, showed them to be completely identical with the sources of the rumors that

engulfed the USA on the wave of the 20th cycle of solar activity and were brilliantly described by John Kil [transliteration] in the book "UFO—Operation Trojan Horse." Kil distinguished four sources of rumors in the book—clairvoyants, mediums, spirits and hippies (an altered state of consciousness). We revealed four sources of rumors in Tomsk as well.

The first source consisted of clairvoyants and sensitives. The newspapers cited authoritative prophets, particularly the prediction made by Vanga from Bulgaria. When asked about it, Vanga rejected this prediction outright. On the other hand Viktor Vostokov, a doctor of Tibetan medicine, who had predicted the Kishinev earthquake and the "Nakhimov" disaster, cautiously noted in a certain interview in response to a question from a correspondent regarding future surprises that he was very troubled by the Tomsk Nuclear Power Plant, that something might possibly go wrong there.

Another source was mediums. In August 1989 Viktor L., the chief engineer of the Tomsk Aviation Sports Club, took part in ferrying an An-2 from Kharkov to Tomsk. During the flight, under strange circumstances he had telepathic contact with "aliens," who told him of the catastrophe that was to befall Tomsk-7 on the first of April 1990.

Can we make use of such prognostic information obtained by such unusual means? Mankind has wrestled with this since ancient times. It would be sufficient to recall the temples of Asclepius, where every person maintaining a vigil cloaked in skins had the chance to receive a healing prescription during his sleep from Asclepius himself.

More up-to-date concepts of prediction are being developed today. Many groups of specialists are working today in our country on extrasensory predictions. Impressive results have been achieved in a number of cases, but on the average, barely one out of every forty registered predictions is confirmed. Nonetheless, scientists are attempting to lift the veil of secrecy from the mechanism of acquiring prophetic information, including for preventing industrial catastrophes.

"A Settlement With a Uranium View," by V. Anufriyeva, Kirov

The settlement of Karintorf, near Kirovo-Chepetskiy, which was founded by peat diggers back before the war, discovered that it neighbored upon a uranium deposit.

Of course the concentration of uranium in the ore is negligible, but the settlement's inhabitants do have grounds for concern.

"They knew about the uranium since the 1960s, and they kept silent about it for 30 years, and they would have continued to keep silent about it as long as nothing went wrong. And in the meantime we became something like experimental rabbits: They take blood samples, make some sort of immunizations, and hang dosimeters in our

homes," Aleksandr Sabrekov, the settlement's commander, complained with irritation.

The deposit is located only 2 or 3 kilometers from a residential area. Before, there used to be peat digs here, while now there is a field overgrown with brush. When I turned on my instrument, the pointer fluctuated between 6 and 8 microroentgens. As we moved off the road the pointer reached the 10 mark. On a thawed patch of dead grass it jumped to 15 μ R/hr. This was as high as it went. Wherever I turned, and wherever I lowered my "mine detector," the pointer never rose above this mark. Does it make sense to raze settlement No 2 of Karintorf, as recommended by associates of the All-Russian Geological Scientific Research Institute imeni Karpinskii, who surveyed the uranium deposit? By the way, in response to them, a report by V. G. Dvernitskiy, a scientist from the St. Petersburg radioecological department, and E. Ya. Yakhnin, a prominent geochemist with Sevzapkologiya, referred to this conclusion as "surprising." They feel that the "recommendation (regarding the razing of settlement No 2—V.A.) cannot be taken seriously, and it does not provide any grounds for stopping life as usual in the settlement." Another review of the research by the geologists came from Moscow. It was written by scientists of the department of radiation hygiene of the Central Institute for Advanced Training of Physicians—Professor V. Ya. Golikov, a member of the Russian Scientific Commission on Radiation Safety, and docent S. I. Ivanov. "We feel that the conclusions and suggestions spelled out by the authors in paragraph 3 of the conclusions (the reference is to razing settlement No 2—V.A.) are unsubstantiated and deeply wrong."

Specialists of the oblast's center for state public health inspection, who had doubts about the validity of the conclusions of the geologists and who sent their report out for review, turned out to be right: The danger was exaggerated, and there was no reason to move the inhabitants. But experts can vary in their opinions, and perhaps it wouldn't hurt to take another look. The fate of settlement No 2 of Karintorf will depend in many ways on measurements of the concentration of radon in the homes and an evaluation of their health. And for the time being, radiation monitoring has been established in regard to food products, drinking water and the gamma-background of both settlements belonging to the enterprise in Karintorf.

"Volga in a Ring of Nuclear Power Plants," by Professor S. Butkov, chairman of the department of economic and social geography of the Ulyanovsk Pedagogical Institute

The Kalinin, Kostroma, Gorkiy, Tatar, Bashkir, Dimitrovgrad and Balakov nuclear power plants are operating, under construction or planned for construction in the Volga-Kama basin.

The Scientific Research Institute of Atomic Reactors (NIIAR) has been working in the city of Dimitrovgrad since 1961. It contains eight reactors, of which five are scientific and three are semi-industrial. Seven reactors

are in operation. The output of the nuclear power plant is 440,000 kilowatts. The NIIAR has 16 permanent observation posts, including two in Ulyanovsk. Radioactive wastes are pumped into the ground to a depth of 1,100-1,500 m. A high-temperature reactor to be used to process depleted fuel was to be built in this city as well. The reactor needed around 100,000 tonnes of high-quality graphite. Its erection would have cost approximately a billion rubles' worth of foreign currency. Because we do not have the needed quantity of graphite and the corresponding amount of money, the reactor was rejected.

Radioactive neutron sources will be produced in Dimitrovgrad jointly with the Chinese Atomic Energy Institute. The Chinese side intends to supply the products to countries in Asia and the Near East. The "radioactive dirt" will remain in Russia.

In order to replenish the continually growing shortage of electric and thermal energy, scientists propose erecting an experimental industrial unit of a new generation on the grounds of the NIIAR in place of the reactor facility being decommissioned. Its output would be 620,000 kilowatts of electric power and up to 215 gigacalories of thermal energy per hour.

Some of the nuclear power plants in the Volga region were built on ground that is unsuitable in geological respects, and even simply dangerous, often in direct proximity to active faults, and at the intersections of river systems, where an abundance of water is observed. Consequently we risk a misfortune on the Volga that would be dozens of times more terrible than Chernobyl.

Russian Water Supply Deemed Unsafe

934F0760A Moscow ROSSIYSKIYE VESTI in Russian
11 Jun 93 p 4

[Interview with corresponding member of the Russian Academy of Medical Sciences Prof. Yuriy Novikov and Doctor of Medical Sciences Sofya Plitman by Lyudmila Sorokina: "What Is Flowing into the 'Little Spring'"]

[Text] The human organism is made in such a way that water is more important for it than food. Alas, water has been becoming more and more dangerous in recent decades. Precisely it gives the impetus for outbreaks of epidemics (typhoid fever, dysentery, cholera, viral hepatitis) and also it is becoming the cause of all kinds of toxic and chemical poisonings. Prof. Yuriy Novikov, corresponding member of the Russian Academy of Medical Sciences, and Doctor of Medical Sciences Sofya Plitman tell our correspondent Lyudmila Sorokina about this problem.

Sorokina: Why is water now becoming a risk factor for all life?

Novikov and Plitman: It is not water itself but the incompetent economic activity of man. As an important

part of the ecological system, water is becoming dangerous because the results of this activity are showing up in it: toxic chemical compounds, salts of heavy metals, phenols, pesticides, and pathogenic bacteria and viruses.

Sorokina: Why is the epidemiological service not guaranteeing us a 100-percent safety of the water?

Novikov and Plitman: Today it is inexpedient and very expensive to purify the drinking water everywhere fully. But this certainly does not mean that the problem has been left to itself. Our state provides to its citizens three kinds of protection of the water (in the United States, by way of comparison, there is only one). In the first place, there is the protection of the water source itself. Secondly, there is the protection of the sanitary zone of the water intake. Thirdly, there is the selection of the system for the treatment of the water before admitting it to the water line. But it is precisely here where the main problems arise. As they say, the epidemiological service, in observing the GOST [state standards], guarantees the quality and safety of the water to the pipe. But the water supply networks of Russia often reduce all the efforts to zero because of their deteriorated state (up to 75,000 breakdowns annually). And beyond that, they increase the degree of risk. Thus, last year there were 16 outbreaks of infections at the fault of water supply systems, in which 2,500 citizens of Russia suffered.

Scientists have developed and proposed still another method for the protection of the water—individual portable purifiers of the type of "Rodnichok," "Vesna," and "Baykal." They are compact, convenient, relatively inexpensive (from 1,000 to 10,000 rubles), dependable, and, in some cases, simply indispensable: on garden plots, on marches and nature hikes—in short, wherever there are no quality sources of water. In acquiring such purifiers, however, it is absolutely necessary to find out if there is a certificate, for precisely it is the guarantee of quality and reliability of the new apparatus.

Sorokina: Portable "Rodnichki"—does this mean, dear fellow citizens, that everyone should protect himself as best he can?

Novikov and Plitman: Not at all. We recommend the individual purifiers as a temporary measure and under certain situations. Only state structures can solve the global problem with potable water. They have the finances and other tools. They must be utilized.

Sorokina: The state of most of the sources is critical: the rivers of the Urals, the Don, the Northern Dvina, the tributaries of the Ob, and many others are simply dangerous. And if we do not concern ourselves with their restoration today, soon only sick people will live on their banks. There must be state programs to save the water sources. Where can we get so much money?

Novikov and Plitman: The policy for the implementation of the programs can be step by step: perhaps slowly but always forward, setting realistic goals and fulfilling them. And there definitely must be an accounting to the

taxpayers, for they have a right to know what their money is being used for. The Committee for Epidemiological Control must speak with authority. We scientists who deal with the problems of potable water are expecting precise social and urgent orders. And they definitely must be priority orders.

And here is still another important position of the regional and local authorities. Where they are truly concerned about their electors, much has already happened. Thus, in Kemerovo, for example, together with the French they are introducing new methods of industrial purification at the water supply station to lower the risk of illness through the water.

Sorokina: Does this mean that domestic technologies are no longer suitable?

Novikov and Plitman: They are suitable. Some very good ones have appeared in recent times. Many have not yet gone through the approval stage, however. But the French are world leaders in the efficiency of the purification of potable water. Their technology has proven itself in many countries. In addition to everything else, its realization will cost us considerably less. And there will be no lost time.

Sorokina: What else could help in the successful resolution of the problems of drinking water in Russia?

Novikov and Plitman: The soonest possible passage of a law on the provision of potable water to the population. Today a whole series of documents (GOST, methodological instructions, and others) have a double interpretation and make it possible for unscrupulous managers or officials to use them as a lever. The entire package of corresponding documents needs to be corrected in accordance with the new economic, ecological, and juridical norms. It is necessary to restore fairness: those who are guilty of ecological crimes and violations must be punished. And not just symbolically, as now, but appreciably, so that the user of drinking water can call to account anyone who infringes on the right of persons to a healthy and full-value life.

Sorokina: We are on the threshold of the summer: What advice with respect to drinking water do you want to give to our readers?

Novikov and Plitman: Above all, use only water that has been purified. And if there are doubts, boil it. We have already spoken of individual purifiers and once again we recommend that they be acquired.

Be very careful about unknown sources of water (wells, reservoirs, ponds, and rivers). If there is no information about their quality, sterilize the water with manganese or definitely boil it for 10 to 15 minutes. This should be done at all times of the year in ecologically unfavorable regions.

State Boosts Controls on Nuclear Materials

934D0184A Moscow *KOMMERSANT-DAILY*
in Russian 17 Jun 93 p 2

[Article by Yevgeniy Timofeyev: "Control Over Use of Nuclear Materials Increased"]

[Text] Three normative documents that toughen state regulation of the activity of enterprises associated with nuclear materials were put into distribution yesterday. Gosatomnadzor [State Nuclear Safety Supervisory Committee] disseminated "Requirements for the Operation of a Nuclear Power Station" and a statute "On Procedures for the Issuance of Temporary Permits of the Gosatomnadzor of Russia to Enterprises of the Fuel Cycle in Types of Activity for the Production, Circulation, and Use of Nuclear Materials and Articles Based on Them," and Gosgeolkom [State Geological Committee] disseminated an order, which was registered with the Ministry of Justice, "On Geological Survey Operations and Detection of Radioactive Contamination on the Territory of the Russian Federation."

The "Requirements for the Operation of a Nuclear Power Station," which go into effect starting on 1 July, comprise a rather voluminous document that for the first time regulates basic questions of the activity of nuclear power stations in detail. According to the document, the operating organization must ensure control over compliance with the conditions of permits and licensing and the requirements of instructions that regulate the operation, technical maintenance, and repair of a station; the maintenance of its equipment in good repair and replacement of equipment whose service life has expired. The operator must also have a program to guarantee the quality of a station, a program to remove a power unit from operation, and a program for handling spent nuclear fuel and radioactive wastes, which have been coordinated with state administrative organs. Rather important requirements are being announced with respect to safety. An operating agency must not only comply with established standards on radioactive waste materials and guarantee radiation monitoring, but also publish its data in the open press. In addition, it is important that the operating organization bear full responsibility for the safety of the station. Provision is also made for the establishment of a system of procedures at the station for coping with accidents, for fire safety, and for preventing sabotage.

The statute that regulates the issuance of permits and licenses for the use of nuclear materials will be in effect until the introduction of appropriate licenses by Gosatomnadzor. It applies to enterprises that conduct activities in the production, circulation, and use of nuclear materials and articles based on them (except for radioisotope sources and radiation equipment articles). The document establishes the procedure for issuing permits consisting of six phases: submission of an application and other necessary documents, verification of the form of the materials of the application, examination of the

substance of the documents, the conduct of inspections at the enterprise, the preparation of findings on the state of nuclear and radiation safety, and the formulation of a temporary permit. The overall period of the examination of the application should not exceed seven months.

The order of Gosgeolkom endows the executive board of the state concern Geolograzvedka [geological prospecting] with all of the de jure rights of a specialized interregional geological center that it has already possessed de facto since last year. The board is entrusted with the tasks for placing orders of the committee on geology and the use of the minerals in geological prospecting work for uranium and other types of radioactive raw materials, and also for detecting radioactive contamination.

The appearance of such documents is quite natural, when you consider the profitability of the "nuclear business" and the increased attention to the state of affairs in this sphere in Russia on the part of Western business circles and public opinion—especially in the Scandinavian countries. It is noteworthy that a draft law has already been prepared now by the parliamentary committee for industry and power engineering "On the Use of Nuclear Energy," which constitutes the juridical basis for increasing state control in this sphere.

[Begin boxed item]

The Substance of the Concept "Nuclear Power Station" and "Operating Organization"

Besides the station itself, the concept of "nuclear power station" includes the nuclear and radiation-dangerous units related to it—storage pits for nuclear fuel and for liquid and solid radioactive wastes.

The **operating organization** of a nuclear power station is an enterprise (organization) established in accordance with legislation of Russia which, in all stages of the life cycle of the nuclear power station, conducts activities through its own forces, or with the involvement of other enterprises, in the selection, design, and construction of a site, initiation of operations, the operation and removal of the nuclear power station from operation, and which has received a license (permit) of the Gosatomnadzor of Russia for the conduct of this activity.

[End boxed item]

[Begin boxed item]

List of Documents Needed To Obtain a Temporary Permit of the Gosatomnadzor of Russia

- Statement with an indication of the types of activity and the facilities in which it is intended to conduct them.
- Copy of the document that certifies state registration of the enterprise.
- Copy of the statute of the enterprise.

- Copy of the contract with the owner of the property that the enterprise is using.
- Copy of the document that corroborates the assignment and rights of the director of the enterprise.
- Set of technical documentation that substantiates the application of the enterprise—including validation of safety, list of technological regulations, passport for the industrial reactor, and the like.

[End boxed item]

Ecology Adviser Interviewed on Industrial, Nuclear Waste

*LD1906130693 Moscow ITAR-TASS in English
1208 GMT 19 Jun 93*

[Text] Moscow June 19 TASS—"We do not know many departmental secrets on environment which are criminally concealed from the population. People have the right to know everything about their place of habitation," Alexey Yablokov, the Russian president's adviser on ecological policy and public health, said in an interview with the KURANTY newspaper on Saturday.

"We hear more often of fires, explosions, discharges of toxic agents and industrial disasters," he continued. "The impression is that something has broken out somewhere, and calamities swooped down on our heads," the scholar added.

"The reason is that emergencies are now not concealed from our people. Causes of industrial disasters are now well known: disregard for safety engineering (even if it is far from strict) at all levels. There are no protective aids and control instruments. Technology has become outdated," Yablokov said.

Emergencies and their causes were concealed as top secret information in the former Soviet Union. Therefore, they gradually accumulated and now splash out with numerous calamities.

The scientist stressed that reasons for industrial disasters at munitions factorries still remain a closely guarded secret from state watchdog agencies.

Yablokov noted that only just a few Muscovites know that over a dozen of nuclear piles operate at Moscow research institutions. Another dozen is exploited in the Moscow region.

The scientist is convinced that the problem of storage and destruction of highly toxic and radioactive waste has become more acute than the construction of new reactors. This is graphically corroborated by the problem of burying waste from nuclear submarines.

"Nuclear-powered submarines were built at any price," he noted. "But where they should be taken away when their service life ends? (this time has come.) Not a single designer of subs gave a thought to this."

The scientist noted that the problem of radioactive waste for Russia is "a strenuous burden inherited from the Soviet Union. It is impossible to stop fully the operation of the nuclear fleet, but order, at least minimum, in storing its waste should be established."

"Solid waste is stored ashore, but there is no place for liquid waste, therefore, it is discharged into sea," Yablokov said. "True, the danger in this case is not great," he claimed. No inspection can spot waste discharged by a ship after three hours: It will be dissolved by sea waters.

But sea's ability for restoration is not endless. "This elusionary and tricky simplicity of tackling the problem of waste will echo in rising generations," the scientist concluded.

Pollution Caused by Chelyabinsk-65 Plutonium Plant Noted

PM2406091193 Moscow Ostankino Television First Channel Network in Russian 1445 GMT 20 Jun 93

[From the "Novosti" newscast: Video report by Sergey Sergeyev and Vladislav Otryyanov, identified by caption; figures in brackets denote broadcast time in GMT in hours, minutes, and seconds]

[Text] [144849] [Video shows apartment blocks] [Sergeyev] Chelyabinsk-65 grew up deep in the Urals taiga soon after the Great Patriotic War. The task had been set of developing in this area as quickly as possible a powerful complex for the production of weapons-grade plutonium—the basic component of atom bombs. And exactly 45 years ago, on 19 June 1948, the first nuclear reactor began operations. Let's be fair—throughout that period when the first Russian atom bomb was being developed under very difficult conditions neither the scientists nor the "Mayak" specialists knew much about the impact of radiation on the environment. And this led to tragic mistakes. [Video shows river] This is the Techa River. During the first few years it was used for dumping radioactive waste. The river was ruined, along with dozens of villages downstream. Thousands of people received varying doses of radiation. [Video shows scrap metal] Here at the "Mayak" Chemical Combine's production site a container of liquid radioactive waste blew up in September 1957. The accident—which was hushed up for many years—is now called the "Chernobyl of the Urals." [Video shows lake] This is Lake Karachay—over the past 40 years it has turned into the world's most terrible storage site of long-lived radionuclides—registering more than 120 million curies in all. This dangerous lake is now being eliminated by being filled in with gravel and reinforced concrete blocks. [Video shows buildings, river, scientists in discussion, lake being filled in] [145005]

Hazardous Materials Registration Mandated

934D0184B Moscow *KOMMERSANT-DAILY*
in Russian 22 Jun 93 p 2

[Article by Vladimir Semenov: "Using Hazardous Materials; State Control Over Chemical Industry Increased"]

[Text] Instructions of the Ministry of Ecology and Natural Resources and of the State Committee for Public Health and Disease Control "On Procedures for the Official Registration of Potentially Hazardous Chemical and Biological Substances" were officially put into distribution yesterday. According to the document, all such substances must be registered in a mandatory procedure in the Register of Potentially Hazardous Chemical and Biological Substances before the beginning of their production and employment.

[Begin boxed item]

What a Potentially Hazardous Substance Is

A potentially hazardous chemical and (or) biological substance is an individual substance of natural or artificial origin that is capable of having an unfavorable effect on the health of a person and the environment in production, employment, transportation, processing, and also under everyday conditions.

All individual substances produced or employed in the Russian Federation, and also imported from abroad, are subject to **official registration**.

[End of boxed item]

All substances and compounds recognized as potentially hazardous, including those that are part of a composite product, regardless of whether produced in Russia or imported from abroad, are subject to official registration. At the same time, substances that have contaminants in their composition that are formed in the process of production or application also must be registered. According to the general rule, all potentially hazardous substances are registered in the Register before the beginning of their production and application. However, substances that have already been produced, used, or that were imported into Russia before 31 March of this year can be registered in the course of three years. The specific date of registration in this case must be coordinated with organs of public health inspection before 1 July. If at the time of registration it is impossible to submit full information about the substance, but its properties and area of application make it possible to consider the danger to a person and the environment immaterial, then a temporary certificate for three years is issued. During this period, the substance must be registered according to the full form.

After registration, each substance is included in the appropriate section of GOST [All-Union State Standard]. Thus, a substance that has been registered once does not have to be registered a second time. In the

opinion of KOMMERSANT-DAILY experts, the established registration procedure, while not being especially burdensome for enterprises, is capable of ensuring reliable state control over substances that constitute a danger, which fully corresponds to world practice. In addition, an official data bank will be established that possesses complete information on potentially hazardous substances that are used on the territory of Russia. This will make it possible for the producers and users of chemical and biological products to select the substances they need with the least losses.

Entire Altay Kray Said Contaminated by Semipalatinsk Blasts

LD2306123193 Moscow *Radio Rossii Network*
in Russian 1100 GMT 23 Jun 93

[Text] A new rayon—Rebrikhinskiy—is now added to the list of those worst affected by nuclear tests at the Semipalatinsk testing range: Loktevskiy, Uglovskiy, Rubtsovskiy, and Talmenskiy rayons. ITAR-TASS reports that, of 19 babies born there in the last quarter this year, 11 have been registered as having anomalies at birth. Once shrouded in mystery, new facts keep emerging. Thus, it has been established that the Altay Kray was affected by over 40 nuclear tests, rather than 22 as was originally believed. Virtually the entire territory of the kray is now contaminated, and the effects of Semipalatinsk blasts are harmful not only for Altay's present population but are also dangerous for future generations.

Petersburg TETs To Use Efficient, Clean Western Technolgy

PM2906081593 Moscow *ROSSIYSKAYA GAZETA*
in Russian 25 Jun 93 First Edition p 3

[Unattributed report under the "Yesterday, Today, and Tomorrow" rubric: "Cooperation. Light, Heat, and Ecology"]

[Text] The PS1 Finnish-German consortium will join with Russian partners to build the Northwestern Thermal Power Station in St. Petersburg. Just recently the consortium and the "Tekhnopromeksport" Russian foreign trade association signed a contract for this.

In accordance with the contract the power station will be supplied with steam power plants (the consortium member Siemens will provide this equipment). The two phase-one power units, which have a total capacity of 900 megawatts, are distinguished by an extremely high level of efficiency and ecological cleanliness. The project envisages that it will subsequently be possible to double the station's capacity. "Lenenergo" will operate it. The foreign firms' deliveries and services will be repaid by sending part of the power to Finland.

Many enterprises on the Russian side will take part in the facility's construction, including the Leningrad Metallurgical Plant. Siemens AG will create a joint enterprise with our institutes and companies in order to fit out the power station with automated control systems. It is planned to bring the first unit into operation at the end of 1996, and the second in September of 1998.

The thermal power station will be the first power station in Russia to use the gas turbine technology of this well-known company, and the first facility in a program to introduce energy-saving and ecologically clean technologies with our industry playing the greatest possible role.

Japan Sea Radiologically Safe After Russian Dumping

*LD2906095493 Moscow ITAR-TASS in English
0916 GMT 29 Jun 93*

[By ITAR-TASS correspondent Vasilii Golovnin]

[Text] Tokyo June 29 TASS—The waters of the Japanese Sea were radiologically safe despite the fact that Russia had been disposing of the nuclear waste in the region for many years, Shioichi Watanabe, head of the Japanese Scientific and Technological Department who also chairs the Committee on Radiation Issues under the Japanese cabinet, said on Tuesday.

The committee made a series of measurements in the Japanese sea aquatorium after the Russian Government informed Tokyo that during the post-war period the USSR had buried at least two exhausted nuclear submarine reactors and large quantities of containers with solid radioactive substances.

At present, Russia continues to draw off liquid substances of low toxicity in the Japanese Sea because it lacks the powers necessary for their utilization. However, in experts' opinion, the liquids are rather effectively dissolving and there is no noticeable influence either on the radiation level or on the ocean flora and fauna. The Japanese Committee on Radiation Issues has officially confirmed this conclusion. However, Japan would monitor the situation in the potentially dangerous region, Watanabe said.

The Japanese Government intends to speed up the implementation of a joint Russo-Japanese research into the radiological situation in the contiguous sectors of the Pacific Ocean.

Russia To Form International Fund for Decontamination Work

*LD0207174993 Moscow Russian Television Network
in Russian 1000 GMT 2 Jul 93*

[Video report by correspondent R. Safronov, including recorded remarks by Tergiz Borisov, chairman of the Committee for Special Purpose Underwater Works—from the "Vesti" newscast]

[Text] Concerns on a planetary scale will sooner or later put an end to the differences between countries, all the more so since the responsibility for the threat to ecological security lies with all the major states. In addition to the Soviet Union, the United States, France, and other countries have been burying nuclear waste.

Borisov: Pollution can sometimes be carried a thousand miles by underwater currents, to anywhere, and then specialists try desperately to work out where the radioactivity is coming from.

Safronov: Now the government committee headed by Tergiz Borisov is setting up an international fund to carry out work related to decontamination of sunk nuclear submarines, ships, and nuclear waste. Already next year an expedition will be sent to the area where the submarine Komsomolets went down to work out a method of hermetically sealing its reactor, which is creating a radioactive background. In several decades the weapons will have to be recovered.

The United States, the USSR, and French navies have suffered similar accidents in the Atlantic and the Mediterranean. In the Sea of Japan alone there are about 3,000 radioactive dumps. The worst situation is in the North Sea, where there have been 17,500 dumps, including some that are obviously dangerous. Russia is the first country to reveal information about its dumps. [video shows Borisov news conference]

Tomsk-7: Local Journalist Questions 'Official' Accounts

*93WN0465A Novosibirsk SIBIRSKAYA GAZETA
in Russian No 21, May 93 p 5*

[Article by Aleksandr Boltachev, assistant editor of the newspaper DIALOG: "Equilateral Triangle Near the Burst Epicenter, or Lies by Inheritance"]

[Text] While it has taken several years to learn the truth about Chernobyl, it took only a few days to expose the lie about the explosion in Tomsk-7. Are we making progress?

I for example became suspicious right away that the information communicated by official organs (including a government commission) did not correspond to the truth. I was troubled by two circumstances. First, special emphasis was laid in the first communications about the explosion on a statement that radioactive products were still inside the facility. I thought to myself, how well brought up these products are, and how obedient they are to the atomic scientists! The second thing was this: When a map showing the area of radioactive contamination appeared (it turns out that the products did leave the limits of not only the facility but even the plant after all), for some reason according to the official version the radioactive trail assumed the form of an equilateral triangle. This is even though a very strong wind was blowing, and there was nothing on the sides or at the end of the radioactive trail to limit its spread.

But suspicions need to be confirmed by facts. I was given this opportunity approximately a week after the explosion: I traveled with A. Merzlyakov, the chairman of the city (Tomsk-7) ecology committee, and a correspondent from Ostankino Television, to the village of Georgiyevka—the farthest point (if we believe the radioactive contamination map), where according to official data the dose rate was 35 microroentgens per hour.

We left our vehicles where workers of "facility 5" (plant No 5 of the Siberian Chemical Works) were gathering together for lunch. We turned on our dosimeters (there were two of them—one to measure the gamma-background and another for the beta-background). The gamma-background instrument gave a reading of 102 microroentgens per hour (nowhere near 35!). We took measurements off the wall of a home and off a bird-cherry branch—70 μ R/hr. We entered the garden—the pointers began "scaling up"—2,000 μ R/hr. We went out into the street and shared our impressions with dosimetric specialists of the "facility 5" as they were going back to work from lunch, and one of them said to us: "Wait, you'll find even more."

This gave us food for thought. "Well, all right, it is already clear that Georgiyevka is not the farthest point of contamination. Then where are the true boundaries?" I spread out a map of Tomsk Oblast, marked the approximate location of the epicenter of the burst—"facility 15" (plant No 15 of the same works), and drew a line from it to Georgiyevka. Then I extended this line further, and it went directly into the large taiga village of Chernaya Rechka.

Consequently this village had to be next on our itinerary. But I wanted to find someone to accompany us who was in the know but who worked for no one in Tomsk-7. I felt that L. Rikhvanov, a scientist from the Tomsk Polytechnical University could satisfy this requirement. I found him in one of the lecture halls. I began my conversation with him cautiously, suggesting that we might look at a map of the radioactive contamination, if he had one around. As it turned out, Leonid Petrovich did in fact have his own map, which he had plotted on the basis of his own aerial surveys. I was dumbfounded: I had come here to invite the scientist to Chernaya Rechka to take measurements of the radioactive contamination, and here I saw that on his map, the boundary of this contamination was already far beyond this village! Such was the way that the lie regarding the "most distant point" was revealed.

But the lie did not end with this. It was announced quite officially that the place that was most dangerous to the health of people was a section of the Tomsk-Samus road. Dosimetric stations and places to wash off the wheels of motor vehicles were set up on both sides of the road in this section. All of the commissions, delegations and foreign correspondents were brought here to show them that we were taking steps, that we were working on it. It

was in this way that they diverted attention from the burst epicenter—the "15th facility" and the approaches to it.

In the meantime the city ecology committee noted on 12 May that radionuclides were migrating in the direction of Tomsk-7. On 14 May I rode out to "facility 15" together with S. Donnikov, the director of this committee's laboratory, and radiophysical engineer S. Pozhidayev. Three kilometers before our destination we detected elevated radioactivity of from 25 to 100 μ R/hr. Moreover the instrument readings differed dramatically when measurements were taken literally just a few centimeters apart. And as we approached closer, we recorded the most varied radioactivity. And people, suspecting absolutely nothing, walked around everywhere in their own footwear and clothing and drove their private vehicles. For example the instruments showed readings at the bus stop of from 50 to 90 μ R/hr. And we found a spot registering 1,100 μ R/hr in the backyard of the police station. This is where dispatcher V. Balabanenko's private vehicle had stood. The traces it left read 500 μ R/hr. Next to it was a kennel, containing a puppy with fur "lit up" at 220 μ R/hr. Also in the same area was the construction yard of Construction Administration No 10, in which the land and some construction materials were contaminated.

And so, we became persuaded that on the backdrop of continual assurances that the city was not in danger, radionuclides are migrating in its direction, and no one is trying to stop them. State Motor Vehicle Inspection posts and dosimetric stations were of course set up on the road to "facility 15" at 0600 on 18 May owing to an alarm raised by correspondents of the city radio station and the newspaper DIALOG. However, this is not a solution to the problem. So far, only the radioactive "blooms" have appeared. The "berries" will appear later on, after the land dries out, dust appears and winds begin to blow. And as for where they will carry the radioactive infection, God only knows. In the meantime permission has been granted to go on with planting on fields of the Sibiryak Sovkhoz, which are contaminated by radionuclides.

The untruthfulness of representatives of the atomic department, which has its source, as we know, in Lavrentiy Beria, is coming out into the light of day. But this does not yet mean that we know the truth—that is, the remote consequences of the accident. It may take years to establish it. Like in Chernobyl.

Tomsk-7: Decontamination Operations Detailed

*PM0207105793 Moscow ROSSIYSKAYA GAZETA
in Russian 30 Jun 93 First Edition p 3*

[Aleksandr Chernykh report: "The Fuss Has Died Down, Moderate Your Appetites"]

[Text] Tomsk—It is almost three months since the explosion at the radiochemical plant in the city of Tomsk-7. As Anatoliy Pankratov, chief of the civil

defense and emergency situations staff, has said, work in the contaminated zone, which includes several villages, has not stopped for a single day. The main aim remains to carry out a detailed radiation survey and observation aimed at detecting "hot spots." The "Berezovskoye" PGO [Polar Geophysical Observatory] and the "Tayfun" MPO [expansion unknown], independent organizations from Novosibirsk and Moscow respectively, have been taking regular aerial gamma photographs. Reconnaissance is continuing on the ground.

Unfortunately, the most recent data are somewhat late in arriving because the analyses are conducted in Novosibirsk. The Siberian Chemical Combine is conducting a house-by-house survey of the village of Georgiyevka, which was hardest hit by the radioactive discharge. Contaminated soil is being removed and buildings are being decontaminated. As a result the radiation background there has fallen from 60 microroentgens per hour to 25-30 microroentgens per hour. In Chernaya Rechka it has fallen from 50 to 15 microroentgens per hour. But it is not easy to carry out a 100-percent decontamination because the radioactive fallout here was patchy. Thus it is necessary to examine literally every square meter.

Work on the contaminated section of the highway from Tomsk to Samus is practically complete. The roadsides have been covered over and cracks in the road surface have been filled. Four kilometers of new asphalt has been laid. This has made it possible to reduce the level of gamma radiation to 100 microroentgens per hour or less. The surface of the road to Georgiyevka has been removed, and they are beginning to lay asphalt here.

The State Committee for Sanitary and Epidemiological Supervision is rigorously checking all incoming produce. Analyses have shown that the radionuclide content does not exceed the permitted levels. Water samples are being tested every day. So far, fortunately, the fears that melt water would carry radioactive particles outside the control area have proved unfounded. The aerial forestry protection service has been stepped up in case of fires in the contaminated zone.

A comprehensive medical examination of the inhabitants of Georgiyevka, Naumovka, Chernaya Rechka, and Nadezhda has been carried out. Observations are continuing. The children have been taken to a rest home. Five large families have expressed a wish to move away. The authorities are assisting them.

An interdepartmental government commission was working in the oblast recently. Urgent measures were devised to eliminate the aftermath of the accident, and a program was drawn up to enable the oblast to be ready to act in emergency situations. The estimated cost "stretched" to more than 300 billion rubles. Moscow's unambiguous advice was to moderate their appetites. The figure was "squeezed" down to 48 billion rubles and \$2.5 million. A set of documents has been presented to

the government. But the authorities are afraid that political clashes in Moscow may slow down the provision of aid.

WESTERN REGION

Ukraine: Ministry Calls for Tighter Rules on Hazardous Waste Imports

93WN0466A Kiev *PRAVDA UKRAINY* in Russian
3 Jun 93 p 3

[Article from the Press Center of the Ukrainian Ministry for Environmental Protection: "Europe's Dump: Such Is the Name We Can Now Give to Ukraine, Which Is Littered Each Year by More Than 1 Billion Tonnes of Toxic Wastes"]

[Text] Citing Greenpeace, an international organization for protection of the environment, news agencies reported that since the beginning of this year, 230 tonnes of highly toxic chemicals had been sent to Ukraine from the FRG. Activists of the ecological organization discovered rusted barrels of mercury, of dyes containing heavy metals, sulfuric acid, cyanide and other toxic chemicals in one of the army barracks in Rivny. These "exported goods" were sent to Ukraine from a number of German chemical laboratories.

The Ministry for Environmental Protection issued a statement in this connection:

Owing to oversaturation of the land with mining, metallurgical and chemical enterprises possessing obsolete production processes and facilities, Ukrainian power engineers now represent the "dirtiest" production operations in Europe. The accident at the Chernobyl Nuclear Power Plant significantly complicated the situation. The volume of wastes accumulated by different industrial sectors exceeds 17 billion tonnes, and it continues to grow annually by more than 1 billion tonnes. Nonrenewable natural resources are being depleted, and the soil, water and air are suffering intensive pollution. The unfavorable ecological conditions have a negative influence upon demographic processes, causing a worsening in the health of the population. Today the average life span indicators in Ukraine are far below those of developed countries, and a process of die-off of ethnic Ukrainians began in 1991. The relentlessly deepening economic crisis is an additional factor worsening the ecological and demographic situation.

Under these conditions uncontrolled shipments of toxic industrial wastes from outside Ukraine are becoming an additional factor worsening the quality of the environment. Recently cases of shipments of dangerous production wastes from foreign companies into Ukraine, with local commercial organizations and state enterprises acting as middlemen, have grown in frequency considerably. They occurred in Transcarpathian, Zaporozhye, Lvov, Rovno, Cherkassy and Kiev oblasts and in the Crimean Republic.

Agreements between foreign importers and the organizations receiving the dangerous wastes are signed without the permission of the appropriate bodies of local government and environmental protection agencies. This is a violation of legislation presently in effect, particularly the law "On Protection of the Environment."

In world practice, the procedure of transporting wastes across borders is regulated by the Basel Convention, to which Ukraine is not a party. Ukraine does not possess the necessary legislative base for regulating these processes, or modern, effective production procedures for processing toxic wastes.

Relying upon the Ukrainian law "On Protection of the Environment," the Ukrainian Ministry for Environmental Protection used its powers to implement preventive measures to terminate the practice of shipping toxic wastes into Ukraine, and it submitted specific proposals to the State Committee for Border Protection Affairs and the State Administration of the Ukrainian Railroad on intensifying control over shipment of dangerous wastes into the territory of our state. However, the measures have not yet produced the desired effect.

Considering the above, the Ukrainian Ministry for Environmental Protection feels it necessary to announce that in order to prevent negative consequences of the dangerous production wastes upon the environment and the health of the Ukrainian people, the corresponding state bodies of Ukraine must hasten the effort to sign and ratify the Basel Convention.

Until Ukraine joins the Basel Convention, the corresponding law must be adopted governing the procedure of handling wastes, the necessary changes must be made in the Ukrainian Customs Code, and a state ecological border control service must be established. In order to protect Ukraine from shipment of dangerous wastes from other countries, the governments of the countries must be asked to keep the Ukrainian Ministry of Environmental Protection informed on all requests for permission to export dangerous wastes and to import them into Ukraine or to ship them in transit across its territory. Permits for such action must not be issued without the written consent of Ukraine in each individual case. The corresponding bilateral agreements must be signed with the governments of other countries on regulating movement of dangerous wastes through Ukrainian territory, including the procedures for returning such wastes to the importing countries.

Ukraine: Environment Ministry To Toughen Waste Import Regulations

WS2806075193 Kiev KHRESHCHATYK in Ukrainian 9 Jun 93 p 6

[Article attributed to the press center of the Ukrainian Ministry of Environment and UKRINFORM: "Ukraine Is Not a Dumping Ground for Industrial Wastes"]

[Text] With reference to "Green Peace," an organization for environmental protection, news agencies reported that 230 metric tonnes of highly toxic chemical substances were illegally imported to Ukraine since the beginning of the year. "Green Peace" activists discovered on the territory of one of the military barracks in Rivne rusted barrels containing mercury, paint comprising heavy metals, sulfuric acid with cyanides, and other toxic agents. These "imported goods" were dispatched to Ukraine by a range of German chemical laboratories.

In this connection, the Ukrainian Ministry of Environmental Protection issued a declaration that says the following:

As a result of excessive concentration of coal-mining, metallurgical, and chemical enterprises with obsolete technologies and power engineering facilities on the territory of Ukraine, the country's industrial production is one of the "dirtiest" in Europe. The situation was substantially aggravated by the accident at the Chernobyl AES [atomic power station]. The stock-pile of wastes from various industry branches exceeded 17 billion metric tonnes and is growing at the rate of more than 1 billion tonnes per year. Unrenewable natural resources continue to diminish, the soil, waters, and air are being contaminated. Unfavorable ecological conditions have a negative impact on the demographical situation and impair the health of the population. At present, life expectancy in Ukraine is much lower than in the developed countries; and the process of the death of the Ukrainian nation began in 1991. An additional factor negatively affecting the ecological and demographical situation is the growing economic crisis.

Uncontrolled imports of toxic chemical wastes to Ukraine add to the gravity of the overall situation. Cases of smuggling dangerous wastes coming from foreign enterprises, facilitated by the national commercial structures acting as a middleman, are becoming more frequent, and were reported in Ciscarpathian, Zaporizhzhya, Lvov, Rivne, Cherkasy, and Kiev Oblasts as well as the Crimean Republic.

Agreements between the importers and the organizations receiving hazardous wastes are concluded without the permission of local authorities and environmental protection institutions, which violates the active legislation, in particular the Law on Environmental Protection.

Waste imports are regulated worldwide by the Basel Convention, which Ukraine has not signed. The country has no relevant legislation or efficient recycling technology.

The Ukrainian Environment Ministry, invoking the Law on Environmental Protection and exercising its powers, applied preventive measures to curb the influx of toxic wastes in Ukraine, and turned to the State Customs Committee, the State Committee for Border Protection, and the Ukrainian State Railroads Administration with specific proposals intended to enhance control over the

imports of hazardous agents on the territory of our state. These steps, however, did not produce the desired effects.

Given the above, the Ukrainian Ministry of Environmental Protection considers it necessary to declare that in order to prevent the negative influence of the dangerous industrial wastes on the environment and the Ukrainian people, relevant government bodies must hasten their moves to sign and ratify the Basel Convention.

Before joining the Convention, they should accelerate the adoption of corresponding legislature on procedures for handling the wastes, introduce necessary changes to the Ukrainian Customs Code, and establish an ecology-monitoring agency on the Ukrainian border. To protect Ukraine from foreign industrial wastes, the bodies will also have to ask foreign governments to report all the requests for permission to import such wastes to Ukraine or transport them as transit goods through the Ukrainian territory as well as deny those requests without the written permission of Ukrainian authorities. The relevant institution should also be obliged to conclude necessary agreements with other governments on the regulation of wastes transportation on the territory of Ukraine, including the procedures for sending them back to the countries of origin.

Ukraine: French Project for New Chernobyl Sarcophagus Detailed

*PM2406093193 Moscow PRAVDA in Russian
23 Jun 93 p 7*

[Vladimir Bolshakov report: "New Sarcophagus for Chernobyl"]

[Text] Paris, 22 Jun—As has become known here, at the decision of the Ukrainian authorities the Campenon-Bernard-SGE firm has received a contract to dismantle the fourth reactor at the Chernobyl AES [nuclear electric power station], which exploded 26 April 1986, and the concrete sarcophagus which now covers it.

The contract itself is unique—no one in the entire history of nuclear power has yet been involved in dismantling a reactor put out of action as a result of such an accident. CB-SGE was one of the participants in an international competition, even beating the famous French construction firm Bouygues, whose project proposed burying the fourth reactor under a massive new sarcophagus.

The CB-SGE project envisages the construction of a working sarcophagus which will make it possible to cover the vast area on which the dismantling of the present sarcophagus—built in 1986, and which now has over 1,000 cracks in it—will be carried out; then the fourth reactor will be demolished, after which all the debris and all the construction waste with a high level of radioactivity will be packed in containers.

It is proposed that a box made of concrete "blocks," hollow inside and shaped like children's plastic "Lego" pieces, will be constructed over the present sarcophagus. The blocks, six meters by six and weighing several hundred tonnes apiece, fit solidly together. Resin seals will ensure that the joins are impermeable. With the help of these blocks a square wall will be erected on a concrete foundation, onto which wall a gigantic roof of lead and concrete and an area of 20,000 meters [as published] will be slid, rather than placed, in the same way as the structure of a bridge is slid onto the abutments.

At a height of 90 meters, special passageways resembling airtight chambers [kessonnyaya kamera] or hermetically sealing sluices will be built into the wall of the new sarcophagus via which radio-controlled vehicles [mashina] will gain access to the site. The presence of people inside the sarcophagus is ruled out.

Vehicles and robots will have to evacuate 350,000 square meters [as published] of debris from this "construction site of the century," after first grading it according to the level of radioactive contamination.

Debris with a half-life of 240,000 years will be entombed in a concrete storage pit measuring 20 meters by 20 alongside the Chernobyl AES. The plutonium used to fuel the fourth reactor will be placed in the type of containers that are usually used to transport nuclear materials for the AES. Concrete with a radioactive contamination of less than 0.01 curies per tonne will be subjected to treatment and purification at a specially constructed storage facility.

Technically speaking, CB-SGE is prepared to solve the problem of dismantling the sarcophagus and the reactor, as well as the problem of removing the construction "waste." However, the problem of burying the bulk of the highly radioactive debris has yet to be resolved by the Ukrainian authorities. There is as yet no clarity regarding this subject.

Work at Chernobyl will start this year. It is calculated to take a very long time. And the preliminary estimate of its cost is approximately \$300 million. And that is a very conservative estimate.

Ukraine: Scientists Report Ozone Layer Above Ukraine Thinner

*LD2606212093 Moscow ITAR-TASS in English
2023 GMT 26 Jun 93*

[By ITAR-TASS correspondents Galina Nekrasova and Anna Bakina]

[Text] Lvov-Moscow June 26 TASS—The ozone layer above Ukraine has become thinner, same as above Russia.

As the ozone layer protects the Earth from ultraviolet rays, its thinning leaders to the increase of carciroma cutanum and cataract cases, damages agriculture and

forests and boosts the formation of photo-chemical smog in industrial centers. Ozone concentration in the Ukrainian skies has reduced by five per cent.

In contrast to the current situation, previous ozone holes appeared in fall and winter, when the sun is not high. In the Russian central black Earth area the situation is similar: in May the ozone level was ten per cent less than the norm; as compared to 15 percent in the Far East and eastern Siberia.

In this situation, scientists call for the creation of a system of direct monitoring of biologically active ultraviolet. The observatory has developed the initial stage of the system to be used in Russian central regions. However, they have not been supported by official departments.

Ukraine: New Rules for Delivery of Toxic Substances Considered

LD0207210993 Kiev Radio Ukraine World Service in Ukrainian 1600 GMT 2 Jul 93

[Text] Environment Minister Yuriy Kostenko today held a meeting with correspondents about the results of the work done by the Ministry of the Environment over the past seven months. As Yuriy Kostenko pointed out, due to an active stand of the ministry the Cabinet of Ministers is now considering a resolution on the rules of delivering raw and toxic materials to Ukraine's territory. New basic standards of payments for ejecting and discharging pollutants have been laid down. In the minister's opinion, this is a real initiation of economic influence on the activities of enterprises. Besides, changes in the Administrative Code have been approved, which allow the inspectorate of the Ministry of the Environment to impose penal sanctions on the violators of the nature protection legislation.

Belarus: Green Party Opposes Further AES Construction

934K10904 Minsk ZVYAZDA in Belarusian 21 Apr 93 p 2

[Article by Belarus Green Party Chairman Mikola Kartash in response to article "Atomic Energy in the Republic—To Be or Not To Be?": "Green Party Says No to Nuclear Plants!"]

[Text] In an article in ZVYAZDA on 12 January, L. Tarasenka and M. Burak state that the republic imports 25 percent of its electricity and generates 75 percent locally, chiefly by burning imported gas and oil. They think there are two ways to ensure a steady energy balance. First, conserve energy resources; second, build seven or eight AESes [nuclear power plants]. They reject the first one as too troublesome and urge the second. I beg to differ.

Today 80 percent of the world's energy comes from burning non-renewable resources. Scientists estimate

that at present rates of consumption, fuel reserves will last for 600 to 800 years. Moreover, the only long-term source of energy is coal, which may be sufficient for 600 to 700 years (300 to 400 by other estimates). There is enough petroleum for 60 to 70 years and enough gas for 30 to 40.

Under conditions even of the present level of energy generation, given the disruption of the ecological balance, the environmental impact is becoming the main factor in the choice of energy strategy. Why give preference to coal, which is relatively cheap but environmentally harmful, or to gas, which is ecologically clean but whose reserves are limited? Should we count so much on nuclear energy, which, considering all the costs—building the plant, safety measures, storing radioactive wastes—is the most costly of all sources.

Which tendencies predominate in the development of world energy? Basically, all kinds. The percentage of oil-fired plants is going down, coal and gas plants are increasing, and alternative energy is developing rapidly. Attitudes toward nuclear reactors differ in different countries. Nuclear power is developing in Japan, England, France, and the U.S. In Italy, Denmark, the Netherlands, and Sweden there is a complete ban, and existing reactors are being deactivated.

In regard to tendencies of world energy development, I should like to focus in more detail on coal, which amounts to about 30 percent of the consumption of the world's energy resources. Specialists estimate that coal consumption is appreciably rising. It is thought that in the year 2000 world consumption of coal for energy will rise by 1.24 times over 1990, totaling 4.39 billion tonnes. The world coal trade will increase by 1.5 to 1.7 times, totaling 265 to 330 million tonnes. The U.S., Australia, and South Africa will remain the chief exporters. The main importers will be Western and Eastern Europe and the Pacific Basin.

What priorities are observed in Russia's energy policy? It is assumed by specialists that in 2010 electricity consumption will reach 9,000 to 11,000 kilowatt-hours per capita. One option calls for putting 20 to 25 million kilowatts of AES capacity into operation, but only after the year 2000, when new-generation reactors are developed with safety levels meeting world standards. Also to be considered is the difficulty of increasing gas reserves for power plants, because gas is essentially Russia's only exportable resource, which should at least partly compensate for the sharp drop in oil exports. In this situation, Russian specialists think, one possible remedy is the gradual conversion of most electrical power enterprises to coal.

Let's now examine two other questions—the development of alternative energy and the electricity situation in Belarus.

Denmark is the leader in wind energy today. In 1920, this country of three million had 30,000 windmills in operation. Now, with a population of 5.5 million, the

number of windmills is 3,000. They are used to generate electricity, pump water, and turn millstones. Work on wind turbines, the first of which appeared in 1976, was given impetus by the oil crisis in the 1970s (by the way, after the crisis Western Europe reduced oil consumption by about 40 percent). The cost of a kilowatt-hour of wind energy is about 15 cents U.S. Construction costs are recouped in eight years, and the plant begins to turn a profit.

Another alternative energy resource is hydropower. Small GESEs [hydropower plants] of the classic type can be built in the northern oblasts of our republic, in localities of moraine relief. On lowland rivers (the Dniepr, Pripyat, Sozh, Neman, Bug, and Western Dvina), electricity can be generated in GESEs without dams. It requires low-speed hydrogenerators of 100 to 1000 megawatt capacity.

In Latvia, whose energy situation is like ours, plans call for using Western technologies in preparing wood powder to burn, intended as a base for building power plant facilities to generate 300 to 600 megawatts. N. Zeltsin of the Physics and Power Engineering Institute thinks that this will make it possible to generate 2 to 4 billion kilowatt-hours per year. The burning of trash will make it possible to build capacity generating 10 to 15 megawatts.

Many countries are rapidly developing bio-gas installations. A facility with a capacity of about 10 cubic meters of bio-gas per day, obtained from manure, makes it possible to meet the energy needs of a family of four or five. For example, China is now using over 7 million bio-gas generating installations. In the past 10 years the number of mini-GESEs with a unit capacity of about 100 kilowatts in that country has risen to 100,000. It would be good if our state and trading outfits, using the results of S. S. Shushkevich's visit to China, purchased mini-GESE equipment instead of thermoses and feather beds (by the way, the equipment is highly reliable and is in great demand in the world).

What is the energy situation in Belarus, and how is it to be dealt with? We now have 22 TETses [thermoelectric power plants] and two small GESEs in operation. In 1991, 49.5 billion kilowatt-hours were generated, amounting to 4,800 kilowatt-hours per capita. Is this very much or little?

The fact is that in terms of electricity consumption our country is not far behind Western Europe.

Now let's see who uses electricity, and how. ZVYAZDA reported once that the Khimvalakno Association in Mahilyov Oblast uses 25 percent of the oblast's electricity. Does Khimvalakno produce a quarter of Mahilyov Oblast's national income?

I did an analysis in Homel Oblast. Last year it consumed 6.5 billion kilowatt-hours. Industry consumed 4.2 billion, or 65 percent; the population consumed 654 million kilowatt-hours or 10 percent. The lion's share was

consumed by major enterprises such as metallurgy plants and oil refineries, the Khimvalakno Association in Svetlogorsk, a chemical plant, the Homselmash VA [Production Association], the Karal VA, and a feed yeasts plant. In all, their share of the total energy consumption in the oblast is 45 percent. Do they produce the same percentage of the oblast's income? No!

For instance, the Karal VA accounts for 2 percent of the electricity consumption and 1.1 percent of the value-added tax; Homselmash VA accounts for 2 percent and 0.8 percent respectively; the Belarus Metallurgy Plant accounts for 14 and 5.1 percent, etc.

Do we need energy guzzlers that produce so little income? The energy-intensiveness of our country's income is 1.5 times higher than in the U.S. and twice as high as Europe's. The effectiveness of our agriculture's energy consumption is half that of the developed countries. So we need a conservation program, a program to restructure industry and agriculture.

What should our republic do to at least cut down on current energy use levels? I believe that first and foremost a change in attitudes toward property ownership is needed. Factories, plants, and the land should become the property of enterprise collectives, stockholders [aktsyanery, payshchyki], and citizens of the republic. An owner is not going to heat the outside air through broken windows or leave the lights on in shops during non-working hours. The energy crisis does more than any argument to compel an owner to install energy-saving technologies.

The government is mapping out general guidelines of energy conservation and preparing economic stimuli—preferential credit and tax benefits for those who install new technologies—and imposing economic sanctions on wasters.

If we cut the energy-intensiveness of the gross national product in half (to the European level), Belarus will need about 25 to 30 billion kilowatt-hours. Belarus had about that much—29 billion—in 1978. Please recall, dear listeners, how we lived in 1978, and ask whether we are living almost twice as well since generating 49 billion in 1991.

The second way, after conservation, is to develop alternative energy, make and install windmills, mini-GESEs and GESEs without dams, solar and bio-gas installations, trash-burning installations, plants to burn vegetable and wood wastes, etc. As in the case of most of the countries named above, we should raise the share of alternative energy to 15-20 percent, amounting to 10-15 billion kilowatt-hours with respect to today's level. In addition, continue the operation of TETses which run on gas and oil. In order to reduce our dependence on energy from Russia, which will be bought at world prices, we need to consider the option of building a coal-fired TES [thermal power plant] and outfit it with modern equipment to recover wastes and scrub flue gases. We should turn to

the question of nuclear energy after the year 2000-2010, when reliable reactors are developed.

For now, the Belarus Green Party says a resolute "No" to nuclear plants.

Which is to win the present debate—common sense or departmental ambition? In Russia the nuclear lobbyists are celebrating victory as they anticipate getting billions to build an AES (a bit of information for the advocates of the nuclear Moloch to think about: in the week from 11 through 18 January, the following incidents occurred in the AESes of Russia: one on January 11th on the fifth unit of the Novovoronezh AES, one on the 14th on the third unit of the Balakovo AES, one on the 15th on the first unit of the Kalinin AES, and one on the 16th on the fifth unit of the Novovoronezh AES). Our Belarusian lobbyists are saluting and repeating the arguments of the Russians. That's why the present Supreme Soviet and Council of Ministers are trying to pass a decision to build an AES.

Finally, the Belarus Green Party considers the Belarusian Ecology Union's position to be immoral, proposing as it does that seven or eight nuclear plants be built on our Chernobyl-ravaged land.

A new Chernobyl would kill Belarus and its children, both those living now and those yet to be born. We might understand why such a project would be advocated by representatives of the military-industrial complex—but ecologists?! For shame, Mssrs L. Tarasenka and M. Burak.

CAUCASUS/CENTRAL ASIA

Azerbaijan: Sumgait: Leads World' in Volume of Harmful Emissions

93WN0456C Moscow ZELENYY MIR in Russian
No 12, Jun 93 [Signed to press 02 Jun 93] p 2

[Unattributed article: "Azerbaijan: In First Place in the World"]

[Text] Sumgait is a zone with an extreme ecological situation. By its relative share of emissions of harmful substances per unit area, Sumgait is first in the world (1,200 tonnes per square kilometer). The concentration of petroleum products and phenols in the Sumgait water basin exceeds the marginally allowable standards by 7-10 and 14-17 times. Today there are negative changes taking place in the city's environment which threaten the state of natural ecological systems and complexes and the health of the residents, primarily the youngest ones. One in four children in Sumgait is born with some sort of anomaly, and the infant mortality rate exceeds the average republic level by 20-25 percent. Sumgait is perhaps the only city in the world which has a children's cemetery.

Summarizing the list of sad facts and the comprehensive scientific analysis of the situation which has arisen, the

Azerbaijan Goskomekologiya [State Committee on Ecology] speaks out for the need to adopt the law, "On Social Protection of the Citizens Who Have Suffered As a Result of Many Years of Harmful Pollution of the Natural Environment, and Measures for Continued Revitalization of the Ecological Situation in the City of Sumgait."

BALTIC STATES

Estonia: Nordic Nuclear Safety Experts Aiding in Sillamae Survey

93K1313Z Helsinki HELSINGIN SANOMAT
in Finnish 28 Apr 93 p 6

[Article by Jukka Perttu: "Solidity of Protective Earthwork Isolating Pile of Waste at Sillamae in Estonia To Be Echo Sounded This Summer; Bore Samples To Be Taken From Radioactive Mountain"]

[Text] Investigators plan to study the durability of the earthwork structure separating the radioactive waste area at Sillamae in Estonia from the Gulf of Finland by echo sounding.

They intend to do the echo sounding this summer while they at the same time take bore samples from the mountain of waste weighing millions of tons.

The mountain of waste is alongside the Gulf of Finland. The earthwork that separates the radioactive masses from the Gulf of Finland is 15 meters from the coast at its closest point.

A Lot of Pure Uranium in Mountain of Waste

The investigators do not yet know exactly what the radioactive mountain of waste contains. According to estimates, there are 1,200 tons of pure uranium in the mountain of waste, or 100 times more than in a similar amount of ordinary soil.

There may be 1,000 times more radium, for example, in the mountain of waste than in a normal mass of earth.

The Norwegians will take care of the drilling for samples and the echo sounding this summer. The samples were originally supposed to be taken last winter, but it was felt that the drilling could be performed more easily in summer.

Raimo Mustonen, the assistant director of the Radiation Safety Center, said that the impact of the waste area on the environment has so far been very little.

The levels of the radioactive substances in the seawater and sediment drop to the typical levels for the Gulf of Finland a few hundred meters from the coast.

According to Mustonen, the earthwork that separates the radioactive masses from the sea appears to be sturdy, but the waste area nonetheless constitutes a risk, especially since they do not know for sure what it contains. "I

wouldn't go ahead and speculate beforehand on what's going to happen in the future."

The mountain of waste was produced after 1948, mainly by waste from uranium refining and to a lesser extent by oil shale ash.

A Swedish-Finnish-Estonian team has examined the Sillamae waste area. In an interim report they submitted in March, they did not feel that there was any immediate danger, but the area is nevertheless not in acceptable condition.

Estonia: Search for Underwater CW Dumping Sites Scheduled

*WS1706144993 Tallinn ETA NEWS RELEASE
in English 1837 GMT 16 June 93*

[Text] Tallinn, June 16—Baltic Sea Environment Protection Convention commission CHEMU will on 21-27 June conduct underwater observations and filming in the Gulf of Finland to search for possible ex-Soviet military equipment and chemical weapons dumping places.

"The Paldiski Bay, area around Neugrund and north of Naissaar will be searched," deputy head of Estonia's green movement, Valdur Lahtvee, told ETA and added that a Greenpeace vessel from Sweden, 'Moby Dick', will arrive to assist.

CHEMUs Russian delegation has failed to provide adequate information on Soviet military dumpings in the Baltic Sea as they have been denied access to archives.

"Witnesses have said that the Soviet Union dumped its military materials in the Baltic Sea, including Estonia's territorial waters," Lahtvee said.

The research will be made by the Greenpeace, the Estonian Maritime Board, the Maritime Inspection, and Estonia's Green Movement.

Lithuania: Command To Withdraw Radioactive Earth From Siauliai

*LD2606184093 Moscow ITAR-TASS in English
1634 GMT 26 Jun 93*

[By ITAR-TASS correspondent Vladas Burbulis]

[Text] Vilnius June 26 TASS—Spots of land contaminated with radioactive substances have been revealed on territory of the Siauliai Zonkiai military airfield, from where a Russian air division has been recently withdrawn.

A dosimeter examination showed powerful radium emanation, which is dangerous for both human health and the environment.

The military command of the Russian North-Western Group of Forces decided today to airlift to Russia about one ton of radium-contaminated materials that were dumped into soil, the Radio Lithuanian reports. Radium-containing substances will be piled in a radioactive material storage in the Leningrad region.

The radium will be transported by a specially equipped military cargo plane with money of the Russian Army, the Russian military command told the Siauliai authorities in an official letter.

AUSTRIA

Minister on Need for Waste Reduction
93WN0459A Vienna DIE PRESSE in German
25 May 93 p 15

[Unattributed Article: "Waste Management Needs Stimuli; Industry Branch Concepts as a New Approach to Cooperation"]

[Text] In the past, production and supply were the focus of economic thinking and actions. The economic cycle with its elements of supply and waste disposal could be called an open-end system which in the area of waste disposal consisted primarily of the removal of discarded consumer goods. The final link of the economic chain in this open system was the disposal of waste where standard solutions, such as dumping and waste incineration, were predominant.

Limited refuse dump capacities, increasing problems of acceptance for the erection of waste disposal facilities, and the increasing significance of environmental protection in the discussion demand novel concepts in the field of environmental engineering. Waste management has developed into a central problem whose solution necessitates a collaboration of those who are in charge of action and decisions in the political, administrative, and economic arena.

Against the background of legal provisions and basic free-enterprise conditions, even the production process of businesses must incorporate innovative waste prevention and treatment technologies. A priority objective is the establishment of raw material cycles and the implementation of waste prevention strategies.

To accomplish this the German Ministry for Environment, Youth, and Family has at its disposal a number of instruments that are employed to decrease the incident of waste as well as reduce certain waste materials or components. Some of these instruments create obligations for consumers and industry. Others offer information by pointing out system-specific solutions in the form of concepts and assistance by subsidizing innovative environmental technologies.

In this context it is the responsibility of waste management to achieve an optimization of the economic process to meet the objectives of an ecologic-social market economy. The values concerning the environment that are beyond any monetary definition must be taken into account in addition to the economic objectives.

The problems associated with waste disposal frequently originate in the mode of production. This also means that the technical level of exploitation has to be adapted to the technical level of production to reach a closed cycle from a one-way street.

In the case of new facilities—those are facilities that were approved after the waste management act 1990 had

taken effect—these principles of modern waste management have already been realized in many cases. This should not be expected for many pre-existing installations. Since the waste management act does not provide for the rehabilitation of old facilities to the full extent, so-called "industry branch concepts" should form the basis for this.

Branch-Specific Description of Wastes

It is the objective of these concepts to describe and quantify the prevention and exploitation potential of the waste materials of different industries. These intercompany concepts are usually developed in cooperation between the Federal Ministry for Environment, Youth, and Family and the respective business circles. These are designed to form the basis for the tangible implementation of these concepts within the companies. This procedure shall demonstrate the respective developmental state, based on scientific findings, of progressive processes, installations, and modes of operation, whose functional capacity has been tried and proven (state of the art), and the state of science with regard to waste prevention, salvage, and disposal.

One must not forget, however, that in spite of extensive waste management measures of prevention and salvage there remain residues, and it is therefore not possible to do without appropriate waste treatment facilities (including garbage dumps and waste incinerators in accordance with the state of the art).

Not least, an effort is made in the development of the concepts to bring about a coordination of Austrian conditions with structures having international developments in view of an enhanced European integration. Priority is given to concepts for those waste materials that have a relatively high hazard potential because of their contents (hazardous waste) or those that are generated in large volumes.

If it is possible to assign these wastes according to their source to a specific industry or a specific technology, then these concepts have the responsibility of demonstrating possible solutions in the form of low-waste production processes. This pertains to both the volume of waste discharged from the production process and the pollution contents and hazard potential.

To realize the intentions of modern waste management, which were formulated in the waste management act, and also based on waste disposal bottlenecks, there exists in many fields and industry branches a need for developing such concepts. Actual concepts have already been completed for the following industries and waste categories:

- Wastes from the leather-producing industry,
- Medical waste,
- Automobile repair shop waste.

Publication of a study regarding wastes from the agricultural sector is imminent.

Surveys within the scope of the German waste management plan, which was first submitted in 1992 by the German Ministry for Environment, Youth, and Family and is updated every three years, reveal that of a total of roughly 44 million metric tons of waste (roughly 620,000 tons of these were hazardous waste "produced" in Austria in 1991), 90 percent, in round numbers, had their origin in commerce and industry, agriculture and forestry, public health services et al.

The most effective measures for the prevention and exploitation of wastes are anticipated in those areas.

In the spirit of the principle of cooperation the German Ministry for Environment, Youth, and Family attaches great importance to a fair collaboration among all state and social forces in the development of intentions and the decisionmaking process. This means that the institutions charged with planning the waste management, particularly also the representatives of politics and economy, develop these objectives jointly.

FINLAND

Finnish Firm in Tallinn Water Treatment Project 934K1412Z Helsinki HELSINGIN SANOMAT in Finnish 1 May 93 p 9

[Article by Matti Posio: "Joint Finnish-Estonian Venture Starts To Clean Up Tallinn's Water"]

[Text] A joint Finnish-Estonian venture is going to begin to clean up the city of Tallinn's drinking and wastewater. During the first half of 1994 Kemira, in conjunction with the municipal water and sewage treatment company, is to build a chemical treatment plant in Tallinn. The people in Tallinn estimate that the plant's impact on the quality of the water will be noticeable in a year from now.

The plant that is to be built will produce 40,000 tons of iron salts a year. These reagents will be used to purify drinking and wastewater. The plant will be a step toward Estonian self-sufficiency in the production of chemicals. The goal is to produce chemicals for Latvia and Lithuania's needs as well.

The city of Tallinn will finance 40 percent of the 20-million-markka plant project through a joint venture founded for that purpose and Kemira, Inc., 60 percent of it.

The Environment Ministry had contributed 1.8 million markkas for the water supply pilot project in Estonia. A report on the results of the experiment was submitted to Environment Minister Sirpa Pietikainen on Monday.

Drinking Water Treated

"We believe that the residents of Tallinn will feel the effect of these water treatment chemicals as early as the end of this summer. The cost of water will obviously rise, but water quality will improve. That's the most important thing," technical director Juri Ligi of the Tallinn Water and Sewage Treatment Company said.

Up to now chemicals to be used in the treatment of water have been imported into Estonia from Russia and other CIS [Commonwealth of Independent States] countries.

"There have been a lot of problems and the quality of the chemicals is poor. The company that has now been founded will make our lives much easier."

Tallinn will pay for its share of the financing with convertible currency, Estonian kroons.

"The joint venture originated in economic deliberations when we were considering the possibility of using Estonian oil shale in Finland. Later on oil shale got pushed into the background and we decided to concentrate on plans for water treatment chemicals," the Environment Ministry's acting project chief, Jaakko Henttonen, said.

Problematic Distillation of Oil Shale in Pori?

To balance imports and exports, Kemira has investigated the possibility of using oil shale in Finland. The shale would be processed through destructive distillation mainly at the company's mining chemistry plants in Pori.

The consumption and production of energy have decreased in Estonia over the past few years. The damage oil shale does to the environment has led to a reduction in the production of its distillate.

The oil shale plant in Narva is one of the biggest polluters of the environment in Estonia. The distillation of oil shale produces huge amounts of acidifying sulphur dioxides. The mountains of ash produced by the distillation of oil shale constitute a problem at Sillamae in Estonia.

At Kemira, however, they say that oil shale would be primarily a "means of payment" for them. According to the company, it has been noted in studies that the calcium in the oil shale can be used to purge smoke gases of sulphur discharges.

"In Pori the oil shale would be distilled in a coal mixture, an entirely different distillation technique from the one used in Narva. No damage to the environment was observed during our tests," Kemira project chief Jukka Vilske said.

Prime Minister Aho on Environment Goals

93WN0439B Helsinki HELSINGIN SANOMAT
in Finnish 9 May 93 p 9

[Article by Jukka Perttu: "Prime Minister Esko Aho: It Will Take a New Industrial Revolution To Save the Environment"]

[Text] "Ahead of us is a new industrial revolution; we must switch to the kinds of production and consumption that do not destroy the environment," Prime Minister Esko Aho (Center Party) insisted in the Parliament building on Tuesday [4 May]. In the industrial revolution outlined by Aho, production and consumption circuits are closed. A cellulose plant free of waste water based on a closed circuit, for example, construction of which is already technically possible, is representative of the new principle.

Aho was speaking at a Center Party seminar at which they were considering what "new Finnish industry" compatible with the interests of people in cities and rural areas would be like.

Thinning of the ozone layer, impoverishment of the natural biodiversity, and the change of climate caused by greenhouse gases, among other things, are the points of departure of the need for change.

'Threats to Environment Generate New Jobs'

Aho believes that these threats to the environment will generate business opportunities and new jobs worth hundreds of billions of markkaa.

"Protection of the environment is one of the world's fastest growing production sectors. The most progressive companies are able to exploit these possibilities."

"Finland's future well-being depends on industry's—and especially the export industry's—ability to comprehend the new opportunities," Aho emphasized.

He believes that Finland has the valid prerequisites for a structural change in our environment because our economy, for example, is largely based on the use of renewable natural resources and because Finnish paper production, waste water treatment, and the technology for burning wood are developed to an advanced degree.

Markus Koskenlinna, the assistant director of the Technology Development Center (TEKES), said that environmental concerns must now be considered on all projects involving the development of new products and methods so that the products will be competitive.

"Last year we made decisions at TEKES on funding projects to improve the state of the environment worth about 110 million markkaa, or over 10 percent of all our funding decisions."

FRANCE**Government Threatens Action Over German Waste Exports**

AU2906172593 Paris AFP in English 1711 GMT
29 Jun 93

[Text] Luxembourg, June 29 (AFP)—The French Government threatened here Tuesday [29 June] to put a stop to massive imports of paper and packaging waste from Germany sent to France for recycling.

French Environment Minister Michel Barnier asked Germany to modify its environmental laws to protect neighbouring countries, and said he would not hesitate to act if the inflow of German packaging material continued.

He was speaking during a debate among EC environment ministers on packaging regulations.

Germany recently passed strict laws on the disposal of packaging waste such as beverage containers, without having enough waste treatment facilities.

The result has been that waste treatment plants in other countries such as France are paid to accept them and have been inundated. Barnier said Britain, the Netherlands, Spain and Luxembourg were also concerned.

Speaking after talks with his German counterpart, he asked that the movement of packaging waste between European countries be regulated.

The meeting also agreed to impose strict controls on emissions from incinerators for dangerous waste, largely adopting norms already in use in Germany and Denmark. It fixed licensing conditions for the incinerators.

Earlier, on Monday, the ministers decided on technical standards to reduce by 90 percent the vapour emissions around petrol storage tanks and the fumes caused by the transfer of petrol from tankers into filling station pumps.

But EC countries will have up to 10 years to apply the measure. Related proposals to clamp down on fumes at filling stations arising from cars pumping petrol are to be considered later.

GERMANY**New Version of Waste Management Act Analyzed**

BR3006084893 Copenhagen ISWA TIMES in English
No 2 1993 pp 11-15

[Article by Joachim Wuttke of the Federal Environmental Agency: "Regulatory Measures on Avoidance, Reuse and Material Recycling in Germany"; regulations based on Art. 14 of the Waste Management Act]

General Principle

[Text] A well-ordered system of waste management is vitally important for a densely populated and highly industrialized country like Germany. The creation of a safe environmentally sound management system is an essential element of safety philosophy in a modern industrial society.

In the past, the classical task of waste management was to collect wastes that were generated, and (after preliminary treatment, if necessary) to reclaim or dump them. But the goal of a modern waste management policy must be to avoid the creation of waste at the industrial and commercial stage where possible. Unavoidable residues must be reclaimed, and unreclaimable wastes disposed of without doing harm.

With the Waste Management Act (WMA), entered into force on November 1st 1986, the principles of modern waste management which were developed in the Federal Republic of Germany as early as 1975 in the Federal Government's Waste Management Programme have become legal principles.

These goals of waste management are:

- The reduction of wastes at the production and consumption stages;
- The increase of waste recycling;
- The harmless disposal of the wastes still occurring then, with costs allocated according to the "polluter pays" principle.

The Waste Avoidance and Waste Management Act

The essential changes vis-a-vis the former Waste Disposal Act are already evident in the title of the new law: "Act on the Avoidance and Management of Waste." The term "management" does not only include the disposal of waste but also the reutilisation or recycling of waste.

The most important new provisions of the WMA provide for:

- Inclusion of the duty to minimise waste generation by waste avoidance and waste utilisation into the enforcement of the Waste Management Act (Article 1 a Sect. 1 WMA);
- Priority of waste utilisation measures over waste disposal, the so-called "Utilisation Order" (Article 1 Sect. 2 in connection with Article 3 Sect. 2 WMA);
- Authorisation for the Federal Government to issue general administrative regulations on requirements for waste management (so called "Technical Instructions on Waste Management");
- Empowerment for the Government to issue ordinances to avoid or reduce noxious substances in waste

or to ensure their environmentally compatible management and to avoid or reduce the quantities of waste produced or to promote reuse and recycling (Art. 14 WMA).

The new WMA forms a substantially improved basis for the whole waste management system and requires a change in waste as well as in the attitude of waste generators and of enforcement authorities.

The Rationale Behind the Regulations

Waste management is a rather young field for legislation. The Federal Waste Disposal Act only dates back as far as 1972. At that time legislation was only a mean to structure the organisational patterns in order to obtain an adequate infrastructure for waste disposal and to fix responsibilities in this field.

In the period 1972-1986, it has clearly emerged that it is not sufficient to rely on organizational legislation only and leave its practical implementation to the waste generators, waste managers or to the enforcement authorities of the federal states. Waste management must become an integral part of the production and distribution of goods.

Around 240 million tons of waste were recorded in the Federal Republic of Germany for 1987, the large majority of which was deposited. Depending on the content of noxious substances in the waste and on the hydro-geological conditions at the waste site, this can sooner or later lead to environmental problems (leachate, landfill gas, abandoned waste sites). A fundamental rethinking of approaches accompanied by structural change is necessary in many areas of waste management. The Waste Avoidance and Waste Management Act therefore quite rightly calls for a "quantitative leap forward" towards the avoidance and utilisation of waste. The remaining quantities of waste must be managed in such a way that neither short-term or long-term damage to the environment is to be feared. This will require more costly processes than the traditional method of deposition, particularly when the management of hazardous wastes is concerned.

With exceptions, insufficient facilities exist throughout the Federal Republic for the management of wastes. First of all, this situation is the result of an increasing distrust shown by the public in the practiced techniques of waste management. The issue of planning permission for such facilities became increasingly difficult and time-consuming. It can easily take up to ten years to complete the planning permission procedure in the Federal Republic of Germany. The discussion on dioxin emissions from thermal processes as well as bad landfill practice contributed to the widespread public uneasiness on the reliability of waste management in general and hazardous waste management in particular and this even in a country which has stressed the importance of sound disposal practice from every early stage and which built the first comprehensive hazardous waste management centres as early as the late sixties.

In order to reinstall public acceptance of waste management, the Federal Government proposed the following principles of waste management:

- Clear priority shall be given to waste avoidance and waste utilisation as compared to the former practice of waste disposal. Waste disposal can only be the last resort in a management system.
- Waste management cannot follow the principle of “dump and forget” but must instead use the best available technology. To this end, the use of this technology must be made obligatory for all facilities, whether owned by public bodies or by private enterprises. New technical and organisational licensing standards for waste management have been established.
- Waste management cannot be looked at in isolation from the production and distribution of goods issued. Waste management shall thus form an integral part of production decisions. Environmentally unacceptable product wastes, whether the result of hazardous components or of large amounts of waste being generated, shall not be allowed to be handed over for waste management but shall be subject to measures at source, i.e., in the production process or during their distribution.

The Amendments for Waste Reduction in Detail

The principle of minimising waste generation by the use of non-waste or low-waste technologies or by waste utilisation or recycling is regulated in Article 1a WMA.

The duty of industrial producers to use technically available and economically acceptable means to comply with this principle already formed part of the licensing procedure for facilities subject to the Emission Control Act, covering the greater part of large industrial facilities.

The duty to utilise or recycle waste will be a duty of waste management authorities as well as of waste-generating industries and shops. In the past, the use waste recycling technology was hampered by low disposal costs which often made the development or use of recycling technology economically impossible. Now, recycling must be used if it is technically feasible, if additional cost are not unacceptably high compared to other waste management costs and if there is market for recycling products. This new priority towards the recycling or waste products creates a broad margin for economic decisions by waste generators and waste managers as well as for the development of recycling technology.

The general obligation to minimise waste generation does not stand in isolation. It is backed by requirements for waste management (“Technical Instructions on Waste Management”) and is also subject to detailed regulations by means of statutory ordinances in pursuance of Art. 14 WMA.

Regulations Based on Art. 14 WMA

The Ordinance Authorisation in Art. 14 WMA is an important tool for the enforcement of the priority given to waste minimisation. Section 1 or Art 14 enables the Federal Government to issue ordinances on the following in order to avoid the generation of hazardous wastes and to assure their environmentally sound management:

- Separate collection for those wastes that need special treatment.
- Marking/labelling of products containing noxious substances in order to facilitate their return to the manufacturer or distributor after use.
- The duty to take back products after use backed by a mandatory deposit.
- Restrictions in the circulation or use of certain products according to guarantees on appropriate management of the resulting waste, or even the prohibition of certain products or uses if the release of noxious substances during waste management cannot be avoided or only be prevented at disproportionately high costs.

Section 2 of Article 14 provides for similar measures to reduce the quantities of waste generated and to promote reuse and recycling, particularly of packaging and containers. With regard to Section 2, the Federal Government will specify, objectives for waste reduction from products which are to be reached within an adequate period of time and will publish them in the FEDERAL GAZETTE.

The following regulations are in force, under discussion or a draft is published:

- Waste oil ordinance on 20 Oct. 87,
- Deposit ordinance (plastic bottles) on 20 Dec. 88,
- Objectives for beverage containers on 26 April 89,
- Solvent ordinance (CCFs, chlorocarbons) on 31 Oct. 89,
- Objectives for plastic packaging and material on 17 Jan. 90,
- Packaging ordinance for noxious filling materials (under discussion),
- Battery ordinance (draft),
- Waste paper ordinance (draft),
- Construction waste ordinance (draft),
- Objectives for demolition waste (draft),
- Wrecked car ordinance (draft)
- Electronic scrap ordinance (draft),

—Ordinance on quotas for returnable beverage containers (draft).

5.1. Ordinance on the Return of and Mandatory Deposit on Plastic Beverage Containers

The so-called "Plastic-Bottle Ordinance" applies to the usual soft drinks, fruit and vegetable juices, table waters of all kinds, as well as to beer and wine, if filled in plastic containers with a filling volume of 0.2 to 3.0 litres. Retailers, bottlers and distributors are required to levy a DM0.50 deposit on plastic containers, to accept returned containers and to refill or recycle them.

The Ordinance was issued for the following reasons:

- It was feared that the limited introduction of a 2-liter one-way plastic bottle in 1985 as well as the 1.5-liter one-way plastic bottle planned for broad introduction would cause an unnecessary increase in the volume of waste. In contrast to the glass industry, the plastic industry did not have a suitable collection and recycling system.
- The new 1.5-liter one-way plastic bottle would be much easier to handle for retailers and consumers as compared to the heavy returnable glass bottle. Therefore, it was to be feared that the new bottle would banish the remaining returnable systems for soft drinks, mineral waters and beer from the market once and for all, resulting in corresponding increases in the quantity of volume of the wastes.
- Finally, since the beginning of the eighties, a steadily increasing flood of PVC bottles filled with non-carbonate table waters had reached our stores—and later our dust bins—from other European countries. These were to be tackled at the same time.

The response to this measure was positive, from our viewpoint. The bottlers and the trade have taken the new one-way PET [polyethylene terephthalate] bottles off the market. Instead 1.5-liter returnable PET bottles were developed which are currently being introduced by Coca-Cola. We consider this system to be a positive development with considerable ecological advantages. In addition PVC [polyvinyl chloride] bottles have likewise almost completely disappeared from the market.

Unfortunately, PVC bottles have only been replaced by returnable systems to a limited extent. Their substitution by non-returnable glass bottles and carton-based containers must be viewed with concern from an environmental perspective.

The industries concerned were noted to make considerable efforts to convince the EC in Brussels that the Federal Government's measures would cause distortions of competition. On 22 November, EC Commissioners Bangemann and Ripa de Meana wrote to the Federal Minister, stating: "The Commission has made the preservation of the environment its priority goal, and we support it in the fight against plastic waste. We also do not object to a return system with mandatory deposit, a

means explicitly provided for in Directive 85/339/EEC. We want this system to function as efficiently and as unbureaucratically as possible...."

This took the wind out of every critic's sails. The ECs objection that the Ordinance did not allow for a return of the containers via machines or external collection points could be refuted through appropriate clarifications.

5.2. Objectives for the Avoidance, Reduction or Reuse/Recycling of Wastes From Packaging Containers, 26 April 1989

The "objectives prescribed by the Federal Government for the avoidance, reduction and reuse/recycling of wastes from beverage containers" which were promulgated in late April of 1989 constitute another environmental-protection measure in the packaging sector. They stipulate quotas for returnable container systems for the commonly sold beverages beer, waters, carbonated and non-carbonated refreshing beverages and fruit juices as well as wine, which must be attained by mid-1991. This deadline also applies to certain recycling quotas for glass and tin plate.

The objectives provide in particular for the industry to bottle 90 percent of beer and mineral water, 80 percent of sparkling soft drinks, 35 percent of still soft drinks, and 50 percent of wine in returnable bottles by 30 June 1991, and to ensure the return of the empties by suitable return systems.

By 30 June 1991, recycling of used glass is to be increased to a minimum 1.55 million tonnes/annum (compared to 1.25 million tonnes in 1986), and recycling of tin plate to a minimum 0.3 million tonnes/annum.

The industries involved are expected to guarantee acceptance of the materials collected and contribute to covering the cost of collection and reprocessing. This applies especially to scrap tin plate.

Where recycling is not yet possible, such as of cardboard cartons, the industry involved is to make financial, technical or scientific contributions to developing environmentally compatible methods for management of household waste.

5.3. Objectives for Plastic Containers on 17 January 1990

The "objectives prescribed by the Federal Government for the avoidance, reduction and recycling of wastes from plastic containers intended for the sale of food, beverages and consumer goods" have attracted particular attention among all users and producers of plastic containers.

The overall waste-management objectives of avoidance and recycling in the packaging sector are elucidated in a preamble to the regulation. The subsequent text specifies implementation measures designed, in particular, to improve the recycling possibilities for used plastic containers. The diversity of the types of plastics used is to be

reduced to as few and as uniform materials as possible which must be identified by way of a mark or a label. Caps, seals, etc., as well as labels and composite materials must be designed in such a way as to be easy to detach, the shape of the containers must allow low-volume collection after use (e.g., stackability). Plastics whose utilization as energy would require particular expenditure, be it with respect to the incinerator itself or the management of the residues, should not be used. Exceptions were only seen to be possible in cases where substitution is technically not feasible or would lead to even greater environmental burdens. Furthermore, additives posing a hazard to health and the environment, notably mercury, aluminium and cadmium, are to be avoided, similar provisions apply to the ingredients of printing inks.

The objectives apply to bags, including carrying bags, as well as to blisters, and containers of all kinds, exempting, for example bags and blisters as well as containers with a volume of less than 100 ml for labelling.

In addition to the above-mentioned measures which are founded on legal regulations, there is the Environment Label which we should not neglect to point out at this point. The Environment Label is a symbol awarded to alternate products posing a lesser burden on the environment than conventional ones on the market. Interested developments have started here also in the sector of plastic containers, especially for returnable container systems which are a product group eligible for award of the Environment Label. Furthermore, an indirect incentive for recycling has been provided by awarding of the Environment Label to products made of recycled plastics.

Economic measures constitute a further guidance instrument in the packaging sector. The use of such measures has been increasingly demanded as of late. The measures being considered include, in particular, the levying of packaging charges and taxes as well as the establishment of extended deposit systems.

The discussion of the advantages and disadvantages of such measures has not yet come to a conclusion. In particular, it must be examined to what extent such measures are effective in steering developments towards meeting the objectives set and whether, for example, they will be rendered ineffective within the framework of mixed cost calculations or misused as an alibi merely to siphon off monies.

5.4. The Packaging Ordinance and the Dual Waste Management System

The packaging ordinances requires retailers and producers to accept containers returned after use and to either reuse them for the same purpose or to have them recycled outside of public waste management. In addition, it introduces a mandatory deposit on all non-refillable beverage containers.

The ordinance contains regulations of three different packaging materials, defined as follows:

1. Transport packaging: packaging exclusively used for protecting the product on its way from the producer to the sales outlet.
2. Secondary packaging: material which is used to protect a product against theft or to apply additional advertising and which can be removed by the consumer at the store without reducing the possibility to transport the product to its final destination and protect it until it is consumed.
3. Primary packaging, sales packaging: packaging which the consumer needs to transport and to protect the product.

Transport packaging must be taken back after use by the manufacturer of the packaging material or the retailer.

The packaging has to be recycled outside the public waste management system by 1 Dec 1991. Exemptions from these regulations are not provided for.

The same regulation applies for secondary packaging which should remain at the point of sales from where it is to be returned to reuse or recycle (material reprocessing). The directive requires wholesalers to supply—at the point of sale—appropriate containers which enable consumers to remove the packaging and leave it at the store. The regulation was implemented by 1 April 1992. The packaging ordinance also requires that primary material must be taken back by the stores in or near the point of sale.

The packaging then must be returned to the distributor or manufacturer of the product or the manufacturer of the packaging which are required to reuse or recycle it. This obligation is limited to packaging of the type, form and size of packaging supplied by the manufacturer in question or of goods supplied by the said manufacturer and distributor.

In order to create additional incentives for consumers to return packaging to the stores for all containers of beverages, of detergents and of paint, a mandatory deposit between DM0.50 and DM2.00 will be introduced.

Whereas transport packaging and secondary packaging receives no exception from these rules, a possibility is offered to substitute the mandatory deposit system (equalling or bigger than 72 percent for all beverages and equalling or bigger than 17 percent for milk) and the return system for the primary packaging by an alternative, the so-called "Dual System." This system represents an alternative to the communal waste management system, and this to be administered by the industries which are involved in the production, use and distribution of packaging. It is clear that the retailers have an utmost interest to push the "Dual System" and the kerbside collection of packaging waste.

These exemptions are granted to producers and distributors by the authorities responsible for waste management (state government) if the Dual System guarantees a regular collecting, sorting and reprocessing of packaging waste. The Criteria under which exemptions are granted are:

- A specific percentage in terms of weight of packaging waste is collected by the Dual System.
- From this collected volume a specific percentage of the packaging waste must be sorted so that it allows material reprocessing of packaging waste.
- All of the material which has been sorted out must be reprocessed.

It is important to note that the collecting ratios do not only refer to packaging material with the green dot (Gruner Punkt) but to all packaging material produced.

The required different collection ratios for different types of packaging waste will increase over time and by mid-1995 they will be uniformly 80 percent. The percentage to be sorted out will also increase between 1993 and 1995. By then 90 percent of collected glass, tin-plate and aluminium must be sorted out, whereas only 80 percent is required for paper, plastic and compounded materials.

The Dual System is organised as follows:

1. Corporations from the retail industry, the packaging and filling industry, the producers of packaging material, and the raw material suppliers for the packaging industry have formed the "Duales System Deutschland GmbH (DSD)."

The DSD licenses packaging materials. It issues the green dot to users of packaging material. In order to receive it the firm must present a guarantee from the industry (packaging material producer) or a recycling firm to take back and recycle all packaging material. The firm also has to pay a license fee for each packaging unit which varies between DM0 and DM0.20 depending on the volume of the container.

2. With the collected license fee, the DSD finances the technical organisation of collecting and sorting the primary packaging waste from consumers.

3. The sorted packaging material is given back to the firms which had given the recycling guarantee. These firms have to reprocess the packaging material.

The waste collection system organised by the DSD generally is a combination of bring systems and kerbside collection. Glass and papers/cardboard packaging will be collected predominantly through bring systems. In many communities such systems already exist such that only the density of containers would have to be increased. The DSD envisages a density of 500 inhabitants per container. The other packaging material will be collected through the use of a packaging container called "Value

Bin" (or a sack—both yellow in colour) in addition to the original bin. The system is also called yellow bin or yellow sack. The packaging material will then be collected at the kerbside and sorted out at the sorting facilities.

In this way the DSD covers the material flow of packaging from the production stage through retailing and consumption back to the collection and reprocessing of the packaging material.

The packaging regulation will ensure that all recyclable material which was formerly collected by the local authorities (apart from graphic paper) is taken out of the local authority waste management system and collected under the dual system.

5.5. Ordinance on the Reduction of Paper Waste (Draft)

It would appear illogical to set up a commercial collection system which covers packaging paper but not the higher quality papers. Furthermore the paper/cardboard and printed material fraction is the largest single fraction occurring in household and commercial waste. It is therefore logical that work is in progress to draw up a regulation to cover return of graphic paper. This regulation must contain collection and sorting quotas which correspond to the packaging regulations. This means that in 1997, 60 percent of waste paper shall be recycled. In order to ensure that the material is effectively recycled, requirements could be drawn up to regulate the minimum proportion of recycled paper to be used for printing paper or different kinds. The aim of the regulation on paper must in any case be to ensure that only eligible amounts of paper remain in household and similar waste dealt with the local authorities and that the separately collected paper be recycled and on no account incinerated.

5.6. Waste Oil Ordinance: 27 October 1987

The new waste oil management scheme is regulated in the Statutory Ordinance on Waste Oil, made law on 1 November 1987.

This ordinance defines waste oil suitable for recovery, giving limits for certain contaminants (halogens, PCB [polychlorobenzene]). Only motor, gearbox, engine, turbine and hydraulic oils with a mineral oil base will per se be regarded as recyclable oils.

The limits for recyclable oils are:

- Less than or equal to 20 mg/kg (20 ppm) for PCB
- Less than or equal to 2g/kg (2000 ppm) for total halogens

Technical developments may in future allow new processes which enable higher contents to be destroyed. The mixing of different types of waste oils as well as the mixing with other waste are prohibited.

Waste oils that exceed the given limits must be disposed of as hazardous waste, unless thermal use in facilities licensed under Act. 4 of the Federal Emission Control Act is possible. After initial difficulties, the new system now appears to be working well, particularly with regard to the new scheme of an obligatory reception service.

5.7. Ordinance on the Management of Used Halogenated Solvents: 23 Oct 1989

On the model of the waste oil ordinance, the Federal government issued an ordinance on the management of used halogenated solvents (CH_2Cl_2 [subscript 2's], CHCl_3 [subscript 3], C_2HCl_3 [subscript 2, 3], C_2Cl_4 [subscript 2, 4], R-11, R-112, R-113). It came into force on 1 January 1990. By consistent prevention of mixing with other wastes or solvents, the reprocessing of used wastes containing chlorinated hydrocarbons is made easier, and recycling is increased.

5.8. Ordinance on the Reclamation of Scrapped Cars (Draft)

A regulation prescribing objectives for the avoidance, reduction and recycling of wastes from scrapped cars was discussed in Germany. According to this regulation, the quantities of shredder waste (currently amounting to some 400,000 tonnes/annum) are to be reduced by 35 percent to 260,000 tonnes by 1993, mainly by recycling the plastics contained therein.

Remaining residual waste to be landfilled may not be excessively contaminated with operating fluids (oils, lubricants, etc) i.e., such fluids must be drained beforehand and subjected to special treatment. By 1996, the PCB content of shredder waste is to be reduced to levels below 1 ppm.

By 31 December 1993, the automotive industry is to use uniform basic polymers for certain parts not specified here in detail. Furthermore, the plastics must be identified by way of a mark or label in accordance with DIN 7728 Part 1 [German Standards Institute], also specifying the fillers used, such as magnesia, glass and carbon fibres. This information must be machine-readable following removal of the part.

In developing new models, a disassembly-friendly design allowing material recovery from the various parts is to be promoted. Systems containing operating fluids are to be provided with outlets or other simple emptying devices.

Plastics blown by CFCs should not be used. The automotive, plastics and steel industries are to support the construction of disassembly plants at scrap dealers for the reclamation and recycling of plastics and other valuable material. Furthermore, they are to participate in the establishment of effective systems for the treatment of shredder waste by incineration or pyrolysis by 1995 at the latest.

After a workshop on car recycling in Bonn in June 1991 it was decided by the Federal Ministry of the Environmental to realize the above described aims by a statutory ordinance.

5.9. Battery Agreement 9 Sept 1988 and Battery Ordinance (Under Discussion)

Battery manufacturers and retailers signed a commitment on the management of used batteries on 9 September 1988, which includes the following points:

- The mercury content of alkaline-manganese battery is to be reduced to under 0.1 percent in three stages.
- Small storage batteries, gas tight nickel-cadmium storage batteries, starter batteries, button cells containing mercury, and alkaline-manganese battery with a mercury content of at least 0.1 percent of total weight, shall be marked with the recycling symbol (triangle composed of three arrows).
- Used batteries so marked shall be taken back by the manufacturers via the retail trade.
- The Manufacturers shall provide for the use reprocessing of the batteries collected, in the content of the Waste Act's salvaging requirement.

The content of harmful substances in batteries will be reduced by these measures, and where this is not possible, the batteries containing harmful substances will be disposed of properly. Adherence to this commitment is monitored by an independent institution.

Based upon an EC directive the battery management has to be regulated by a statutory ordinance. Then we will have a mandatory take back of batteries and eventually a mandatory deposit on batteries with a high content of heavy metals.

5.10. Electronic Scrap Ordinance

At present there is an accumulation of about 150,000 tonnes of electronic scrap in the Federal Republic to be reprocessed or disposed of each year. Old computer and peripherals account for about 5 percent of this total amount, or about 7,500 tonnes/annum. Consumer electronic appliances such as televisions, radios, video recorders, etc. and communications and process control equipment both make for about 70,000 tonnes/annum.

These amounts will probably increase by about 5-10 percent over the next 10 years. The reasons for this growth include, e.g. the recent end of the post office monopoly on telephones and, more generally, the enormous quantitative and qualitative changes in the stock of data processing and consumer electronic equipment.

In 1988 the German consumer spent an average of DM300 for consumer electronics products. Total purchases included:

- 4.50 million televisions.

—1.80 million video recorders.

—0.45 million camcorders.

In contrast, only 2.5 million televisions were scrapped (average weight 30 kg), along with 1.8 million video recorders, about 1.2 million radios, etc.

At the end of 1989 there were about 2.6 million computers in the Federal Republic, 2.2 million of them microcomputers. In view of constant technical improvements, the service life of such appliances will probably only be about five years.

The main problem facing recycling must be seen in the organisation of retrieval and collection. For that very reason an obligation to accept the return of used electronics based on Art 14 which has been drafted. The objectives of this ordinance are:

- Compulsory take-back systems.
- Recycling of used devices and parts.
- Recycling of valuable materials.
- Substitution and controlled management of dangerous substances.
- The additional costs can be included in prices.

5.11. Ordinance on the Management of Waste From Construction Sites

The wastes generated at construction sites are a very interesting waste category. Approx. 10 million tonnes arise annually. Construction wastes partly contain considerable pollutant levels. They are often disposed of together with harmful demolition waste and excavated soil on landfills that are not sufficiently sanitized. The Federal Government therefore intends to issue an ordinance in order to improve the control of the management of these wastes. These wastes contain materials used in construction and interior works, such as paints and other coating materials, wood preservatives, adhesives, sealants, solvents, etc, as well as shrink wrapping and other packaging, but the residues of structural elements made of plastic should also be mentioned.

The ordinance provides that wastes generated at construction sites have to be collected separately from demolition waste, waste from road repair and excavated soil. The mixing of these materials with wastes from construction sites is prohibited.

5.12. Objectives for the Recycling of Demolition Waste, Wastes from Construction Sites, Excavated Soil and Waste From Road Repair (Draft)

These objectives are directed at all those engaged in construction, renovation and demolition measures. The objectives provide that by 1995, 40 percent of the construction wastes, 60 percent of the demolition waste and 90 percent of the waste from road repair should be

recycled. Demolition measures are assumed to be preceded by a dismantling and removal phase. The materials and products resulting therefrom have to be kept separately and must be managed separately. It must be ensured through suitable monitoring measures or through self-commitments by the corporations responsible for waste management of the waste. A ban on the landfilling of excavated soils and recyclable waste, prove to be particularly effective here. After that date, recyclable portions of construction wastes may no longer be mixed with non recyclable ones and may not be landfilled. Residual building materials which are not kept separately must be separated in a sorting plant.

6. Closing Remarks

Already in the 1986 Waste Act, the legislature expressed in no uncertain terms that special emphasis was to be placed in the future on avoidance and reuse/recycling. According to the coalition agreements the Federal Government will continue on this basis to increasingly incorporate ecological elements in the social markets economy and to heighten the responsibility of producers for their products over their entire life cycle:

- In the future, the problems associated with recycling are to be solved by the producers and distributors. It would be asking too much of cities and communities if one expected them to cope, both organizationally and economically, with all of the new products that industry is releasing to consumers in every accelerating succession.
- Manufacturers and distributors of both short and long lived products should therefore be required in principle to accept their products returned by the consumer after use and to have them recycled outside of public waste management. Recycling is to be done in an environmentally sound manner and should consist, as far as possible, of material recycling (as opposed to energy recovery).
- Manufacturers and distributors should take the costs caused by a product's environmentally safe return as well as recycling or other management into account in their overall cost accounting.
- The costs for taking back and recycling will, as a rule, have to be borne by those using the product concerned—meaning the consumer.
- It should be up to industry and trade to collect, via the price of the new product, the costs associated with take back and recycling. This makes it unnecessary for the state to recover these costs by levying taxes or charges, which would result above all in costly and bureaucratic procedures.
- Industry is provided with an incentive for consistently incorporating all aspects of an environmentally compatible recycling of their products already at the designing stage. As a result, totally new branches of

industry and services will emerge in the nineties. Competition will become the driving force for necessary innovations.

—In the past, the emphasis was placed on the manufacture and marketing of products. Today, the production of goods, their distribution, use, consumption and management must be viewed as closed systems from the perspectives of environmental compatibility and the conservation of scarce resources.

—This includes the requirement that the necessary recycling or environmentally compatible disposal following use is to be taken into account already when the product is under development. All market participants—above all the producers, but also processors and distributors—are called upon to accept responsibility for their products also after their use.

Environment Minister on Recycling Policy

BR2306091893 Bonn *DIE WELT* in German
11 May 93 p 19

[Interview with Federal Environment Minister Toepfer by unidentified questioner; place and date not given: "Consider Disposal Right at the Manufacturing Stage"]

[Text] **DIE WELT:** The Federal Government has now agreed to convert the law on waste into a cyclical economy law. What is the idea behind this move?

Toepfer: We want to obtain a new responsibility for products: Whoever manufactures a product will also have to arrange for its disposal. This means including disposal costs in the product price, thus creating a market-economy incentive to manufacture products that can be dismantled and recycled.

DIE WELT: So recycling will take precedence over disposal in the future?

Toepfer It is in industry's own interest for things to work out that way. I want to ensure that our basic philosophy of "avoidance, recycling, disposal" will become a daily reality.

DIE WELT Industry fears that this law will mean interference in production processes. Experts are already predicting a change from a social market economy to an ecologically planned economic policy.

Toepfer: We are aiming for an ecological and social market economy. Our guiding principle must be to restrict the exploitation of the environment. It has absolutely nothing to do with a planned economy. We live in a world where the population increases by 250,000 each day. Against this background, only technologies that form part of a cyclical chain will survive in the long term.

DIE WELT: What do you think of the suggestion of embodying the ecological concept in the constitution?

Toepfer: The principle of writing environmental protection into the constitution is not in dispute. It is the precise formulation that is the bone of contention.

DIE WELT About the Electronic Scrap Order. Computers contain up to 40 different plastics, making recycling difficult. Could new equipment be subjected to something like a recycling test before it is launched on the market?

Toepfer: I don't want bureaucratic testing or approval procedures. All I want is to stipulate targets that must be met. It cannot and must not be up to the state to stipulate how they are to be met.

DIE WELT: At the beginning of the year, the third stage of the Packaging Order came into force. Are you satisfied with the results so far?

Toepfer: The Packaging Order as a whole has so far been very successful, and this also applies to the third stage of retail packaging. Of course, there are considerable adaptation problems here. Some people are getting round the law. There is actually a trash mafia. The problem is that Germany has too few disposal sites, and this makes the incentive to bypass German regulations especially high.

DIE WELT: What is the current recycling rate?

Toepfer: With plastic, it is very low. The amount of plastic recycled is much too small, and this is one of our difficulties. We have relatively a low rate of organic waste recycling, i.e., composting. With glass, the figure is around 50 percent, and paper is the same.

DIE WELT: How about the Waste Paper Order? Every year, 7.5 million tonnes of waste paper are collected. The prospective order provides for around 8.7 million tonnes in 1997. That's not much of an increase. Why does this order have to remain in force?

Toepfer: The laender called on me in the Federal Council to introduce this order, but it lays down no collection rates. Instead, it calls on industry to increase the proportion of paper such as periodicals and writing paper recycled from 50 to 60 percent. I want responsibility for disposal to be assumed in this area too.

DIE WELT: The Bavarian Farmers' Union has called on its members not to use recycled paper, claiming that the forestry farmers are no longer able to dispose of their wood thinnings to the papermills. Is a conflict of interests emerging here?

Toepfer: We cannot dispense with recycled paper. In the overall balance, which also includes effluent and energy costs, it is cheaper than new paper. We must consider, however, how we can use a renewable raw material like wood. It could be used to generate power, for example. This would improve the CO₂ balance.

DIE WELT: The Automobile Scrap Order is planned for the coming year. The German Automobile Industry Association proposes leaving disposal to manufacturers on a voluntary basis.

Toepfer: I do not wish to release the manufacturers from their responsibility for disposal. I want them to build dismantling capability into a car right from the development stage. I stand by the principle that this product responsibility will apply in the automobile industry too.

DIE WELT: For which other product groups are orders of this type to be drawn up?

Toepfer: A Building Site Refuse Order is in preparation, and if we also add batteries we are doing well, but our idea of closing cycles has also had implications in sectors not yet affected by orders. For example, I am engaged in talks with the textile industry, and the furniture industry, too, is considering recycling.

DIE WELT: Consumers fear that disposal costs will be passed on to them. Ecologists are demanding that prices tell the ecological truth. How much truth can the public be expected to take?

Toepfer: That is the crucial question. We must bear in mind that ecologically realistic prices do not entail increases only. There are also reductions. Technology is changing; so is behavior. In the end, the overall cost to the man in the street could be less, owing to his increased awareness and thrift with an ecological resource that was previously subsidized.

DIE WELT: Would raw materials price increases provide a further incentive for recycling?

Toepfer: We cannot overdo things. Integration of waste disposal costs into prices is our priority objective.

DIE WELT: How is compliance with the orders to be monitored? Is there to be a Technical Monitoring Board for recycling?

Toepfer: It is not up to me to introduce such a body. It is rather up to a manufacturer who recycles products to prove to the authorities that the methods used are environment-compatible.

DIE WELT: What prospects do you see of implementing German recycling concepts at EC level?

Toepfer: The European Packaging Directive contains many elements that were modeled on or adopted directly from the German order. The attitude to recycling for energy purposes is different. Many EC member states are much more open than Germany to incineration.

DIE WELT: Do we have any direct imitators yet?

Toepfer: We have our imitators in Austria, at statutory level as well. There are similar developments in Holland, and France has the "green dot." Internationally, close attention is being paid to what we are doing. I was

recently invited to do a talkshow in the United States, and the first question was: "What about the Packaging Order?"

DIE WELT: The Federal Environment Office estimates that systematic funding for recycling in the original federal laender would mean 30 percent of trash being recycled. Would you be happy with this rate?

Toepfer: If we are just talking about domestic refuse, this would be a bit low. If we are referring to the entire volume of waste, it is a very ambitious figure.

Environment Minister's Recycling Policy Criticized

*BR2306092693 Munich SUEDDEUTSCHE ZEITUNG
in German 11 May 93 p 19*

[Text] Like the environmentalist and consumer organizations, some industrial associations have sharply criticized the Federal Environment Minister's draft for the new waste act, it emerged at a one-day Bundestag Environment Committee hearing on Monday in Bonn. Whereas the bill, which follows the cyclical model in giving precedence to the recycling of waste matter, is rejected by industry on the grounds that it would entail state intervention in company decisions, the environmentalist organizations have accused Federal Environment Minister Klaus Toepfer (CDU [Christian Democratic Union]) of "conjuring tricks."

For the Confederation of German Industry (BDI), Philipp Holzmann AG board spokesman Lothar Mayer voiced opposition to any further extension of statutory regulations. It was more market and less state that the waste industry needed. The multiplicity of industrial processes made it essential that decisions on specific cases be made at company level if the goals of waste avoidance and recycling were to be successfully achieved. In view of the harmonization of environmental regulations needed at EC level, Mayer also demanded that the bill should reflect the requirements of EC legislation. National regulations extending even further would lead to competitive distortions and damage Germany as an industrial nation.

Nor does the Chemical Industry Association (VCI) see any need to amend national regulations except where necessary to bring them into line with EC legislation. Referring to European regulations, the VCI also came out in favor of retaining the equal status of recycling and thermal utilization (refuse incineration). The bill is worded to the effect that recycling "is to" take precedence. The VCI also rejects the power conferred by the bill to issue orders. These powers to issue orders imposing pledges and take-back obligations are included against the event that industry fails to meet the recycling targets of the "cyclical economy."

The German Chamber of Trade and Industry (DIHT), which had already criticized the bill when it was approved by the Federal Cabinet at the end of March,

took the view that constant changes to environmental requirements and an ever-increasing number of regulations gave rise to uncertainty and constraints, especially for small and medium-sized companies.

In a statement, Public Services and Transport Workers' Union President Monika Wulf-Mathies called upon Toepfer to withdraw and completely overhaul the bill. The Federal Government wanted to establish disposal structures contrary to the interests of local authorities and consumers. Bonn ought to rid itself of the erroneous notion that disposal crises and garbage profiteering could only be overcome by private disposal. The law bore the "murky stamp of economic lobbyists."

Trends Toward Monopolization

In the view of the German Environment and Conservation Association (BUND) and the Darmstadt Eco-Institute, the bill meant "saying goodbye to waste avoidance" and a "step backwards to the era of unauthorized refuse dumps." The state was giving up its control over waste disposal. "Conjuring tricks" were being used to turn trash into "residues." Recyclable residues were being born again as "secondary raw materials." As a result, the former waste law would cease to be effective. "Export restrictions and the state's ability to enforce controls will disappear." The Federation of Consumer Associations (AgV) sees in the bill the danger "that genuine refuse avoidance and recycling will be placed on an equal footing." In addition, the bill encouraged the creation of further dual systems for certain types of scrap, such as private cars or electrical equipment. This would foster a trend toward monopolization that was already emerging in the German Packaging Waste Multi Dual System.

Further Illegal Toxic Waste Exports to Ukraine Suspected

BR1106102993 Bonn *DIE WELT* in German
27 May 93 p 1

[Text] More German toxic waste than has previously been assumed has probably been exported to the Ukraine.

Greenpeace has reported that German firms have exported 230 tonnes of highly toxic substances, including liquid mercury, prussic acid, which contains cyanide, and phosphates, to the Ukraine since the beginning of this year. The Environment Ministry in Bonn confirmed that investigations were under way.

Environment Minister Klaus Toepfer (CDU [Christian Democratic Union]) stated yesterday in a DPA [German Press Agency] interview that there was evidence of further waste, declared as commercial goods, having been dispatched to the Ukraine. This was reported to include electronic scrap that had been shipped there without the knowledge of the German authorities. German plastic waste from municipal collections was also said to have been sent to the Ukraine. The minister

was unable to rule out the possibility of German waste having been shipped to Belarus as well.

Environment Ministry Contests EC Antipollution Directive

BR2806101493 Munich *SUEDDEUTSCHE ZEITUNG* in German 10 Jun 93 p 29

[Text] The principle of prevention embodied in German environment law is in danger. Talking to Bonn journalists, the Secretary of State at the Federal Environment Ministry, Clemens Stroetmann, said that plans by the EC Commission for a directive on the "integrated prevention and control of pollution" gave rise to fears that it would lead to EC-wide environmental dumping. If the directive came into force as planned, "a central part of German environment policy would be torpedoed." Stroetmann spoke of a "dangerous route that will not bring European environment policy any further forward." Even the Confederation of German Industry (BDI) referred to the Commission's plans as "fundamentally flawed."

The draft directive that the Commission wants to pass before the summer recess governs the licensing of certain plants in the power, steel, chemical, and waste industries that require public approval in Germany under to Federal Anti-Emmission Law. Stroetmann welcomed the fact that for the first time the draft directive covered air, water, and soil emissions, including waste, in order to achieve a high level of protection for the environment "as a whole." This integrated approach was to be regarded in the same positive light as the EC-wide harmonization of plant licensing laws.

Nevertheless, the secretary of state sees a "dangerous tendency to call into question the stringent requirements of German environment law." The main thorn in Stroetmann's flesh is the dilution of the "state of the art" principle laid down in the German Anti-Emmission Protection Law, whereby equipment for reducing emissions must be improved continuously. According to Stroetmann, however, the EC plans establish an "extremely tenuous link" between the concept of "state of the art" and environmental quality standards. The "state of the art" principle may be waived if environmental quality standards can still be met with less stringent environmental protection requirements. The preventive principle of German environment law would thus be flagrantly violated, as industrial plants could be built with less advanced environment technology in areas where the quality of the environment was still good. Unpolluted regions could thus be "filled" with industrial emissions. This could lead to environmental dumping, if operators sought out Europe's less polluted locations for their plants in order to save costs. In German law, on the other hand, the advancing state of the art had to be complied with at all times and in all locations. Stroetmann was also critical of the fact that

the quality standards and limits were not contained in the directive itself. There were no plans to update the standards continuously.

Stroetmann also feared that the consequence of the directive would be "a lot of bureaucratic expense without any recognizable environmental progress." Although it sounded superficially as if there would be a sort of compulsory environmental TUV [roadworthiness test], if licenses were to be reviewed every seven years and license requirements revised as and when necessary, the system "breaks down in practice." Estimates for North Rhine-Westphalia indicated that the number of inspections—about 2,500 annually—would greatly exceed the number of new and amended licenses (1,800 in 1991).

Industry Favors Limits

The BDI stated that the EC directive would be justified only "if it achieves greater environmental protection than that provided by national law." The directive would fail to achieve its objective if it did not lead to a harmonization of the EC environment standards. Consequently, the EC ought to lay down uniformly binding limits. If need be, limits that went even further should be applied to old plants scheduled for closure.

Recycling Seen Key to East's Chemical Industry

93EN0624B Frankfurt/Main FRANKFURTER
ALLGEMEINE in German 18 Jun 93 p 13

[Article by "him": "Trust Agency Forms New Plans for East German Chemistry; Germany's Largest Plastics Recycling Facility To Rise in Saxony-Anhalt"]

[Text] Wolfen, 17 Jun—With respect to the future of the chemical industry in eastern Germany, Trust Agency board member Klaus Schucht announced the "development of new activities." He said at a symposium at Wolfen near Bitterfeld that the Trust Agency is planning to construct, jointly with Dualen System Deutschland GmbH and Thyssen Handelsunion, Duesseldorf, the largest recycling facility for plastics in Zeitz, Saxony-Anhalt. In doing so, the Trust Agency will utilize the knowledge of the employees in its chemical facilities. Of the 1,700 workers in the Trust Agency companies' research and development departments, 500-600 will leave the companies and work in research institutes. As agreed with federal ministries and with the universities of Halle and Merseburg, the institutes are to be set up in the eastern German chemical region. Besides recycling of plastics, the researchers will primarily work with renewable raw materials and gene technology.

Schucht said 15 enterprises already had indicated their interest in establishing themselves close to the recycling facility. The installation itself will be established near Hydrierwerk Zeitz Inc. [hydrogenation plant], which continues to be owned by the Trust Agency. "At this point, recycling plastics is not yet worth doing," said Schucht, citing the example of turning joghurt cups into

oil. But with the growing scarcity of raw materials and the insecurity with regard to future environmental laws, it makes sense to "focus on topics that have a future." Those who act fast, will gain a time lead. "That may turn into a competitive advantage," the Trust Agency board member suggests. According to Schucht, the plan is going to be discussed with the Federal Research Ministry in the near future. The project is to be presented to the public in about eight weeks.

Schucht believes restructuring the chemical industry was and is one of the Trust Agency's most difficult tasks. In addition to the structural weaknesses of that industry and the old environmental burdens, the Western European chemical industry, in light of the fact that their capacities are sufficiently large to supply the market, showed no interest in preserving the eastern German chemical industry. Also, in a privatization, the composition of matter used by the companies themselves must be taken into account, explained Schucht. It is not possible to simply drop individual operations, but one must look at the chain of net products. Furthermore, the strategy during privatization will be to preserve key businesses that are capable of surviving and to close down unprofitable lines, if they are immaterial to total production. In addition, it is important to develop new, competitive products.

Economics Minister Horst Rehberger of Saxony-Anhalt says he wants the chemical industry to play a dominating role in the southern part of the land. However, the other companies locating in that region, will ensure that the "risk susceptibility" of the Saxony-Anhalt economy will be minimized, Rehberger stated. The minister thinks of the need to develop new procedures to eliminate old ecological burdens in Bitterfeld, Buna, or Leuna as an advantage. Hence, in his opinion, the leading environmental technologies will be developed in Saxony-Anhalt. "In five to 10 years, the chemical triangle will be among the most modern and ecologically interesting chemical regions in the world," believes Rehberger.

GREECE

Study with Russia of Rising Caspian waters

LD2906165193 Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 0930 GMT
29 Jun 93

[Excerpts] Articles of a charter [asasnameh] on setting up a Caspian Sea joint study center between the Islamic Republic of Iran and the Russian Federation have been signed by the two countries' representatives.

The head of the Research and Study Center for the Caspian Sea Water Sources said when announcing this news: On the basis of this charter, the Caspian Sea littoral states will coordinate all the activities on studies, research, and implementation of projects to halt sea

encroachment. The republics of Kazakhstan, Turkmenistan, and Azerbaijan will soon join the fold of this charter's signatories. [passage omitted].

Regarding the activities undertaken by Iran, the head of the center said: Thanks to a proposal of the Islamic Republic of Iran and endorsement by the Republic of Turkmenistan, a canal which allows water to enter the Qara Boghaz bay has been opened; as a result the rising water along the coasts of the Caspian Sea littoral states has subsided. He added: This center has also identified the damaged regions along the Iranian coastal strip and has implemented emergency projects to build sea walls in several places including Tonekabon. He announced that a seminar will be held in Ramsar from 9 to 12 October with the participation of research workers from Iran, Russia, and other littoral states of the Caspian Sea to discuss the causes of the rising sea level.

NORWAY

No Sellafield Reprocessing, Urges Johansson
*PM1706170693 Stockholm SVENSKA DAGBLADET
 in Swedish 7 Jun 93 p 6*

[Hans Strandberg and Johan Selander report: "Minister Wants To Bring Nuclear Waste Home"]

[Text] For over 10 years 140 tonnes of spent Swedish nuclear fuel has been waiting for reprocessing at Britain's Sellafield plant which is suspected of causing leukemia in children. Environment Minister Olof Johansson wants to bring the fuel home, and also to prevent the planned expansion of Sellafield.

Reprocessing means making "new" from "old." Spent nuclear fuel is separated in a very complicated process into uranium and plutonium. These are then mixed to make MOX, mixed oxide fuel, which can power a reactor.

Reprocessing was fully viable politically when OKG, which owns the nuclear power station in Oskarshamn, signed a reprocessing contract with British Nuclear Fuel (BNFL) in 1969. This was a long time before [former Swedish Prime Minister] Falldin's promise not to compromise with his conscience, and an even longer time before Sweden's referendum on nuclear power.

Today we are living in a different era. Reprocessing is a "dead" method for Sweden. It is more complicated and more expensive than storage underground and represents a risk of the spread of weapons-grade plutonium.

On two separate occasions, most recently in 1982, OKG has shipped a total of 140 tonnes of spent nuclear fuel to Sellafield (formerly Windscale), an enormous site which includes four military reactors and a reprocessing plant located in western England on the Irish Sea.

It will not be possible to reprocess the Swedish fuel until the end of the century at the earliest—something that will cost OKG around 650 million kronor.

"At the time we had no alternative; today it is cheaper and simpler to buy fresh uranium. The government has to grant permission for the import of plutonium and for the use of MOX," the head of OKG's fuels, Birger Almgren, said.

Several researchers' reports have pointed to a increase in the number of cases of leukemia in children in Sellafield. The increase is admitted by BNFL which has, however, blamed it on chance and on viruses. At present 40 families with children with leukemia are involved in a legal case against BNFL.

How does it feel for OKG to be linked to Sellafield?

"Not very much fun, even though the dangers are probably exaggerated. But we have a contract which cannot be broken," Almgren said.

The Swedish nuclear fuel will be reprocessed in a new factory, Thorp [thermal oxide reprocessing plant], which has cost the equivalent of just over 28 billion kronor. It was to have started work before Christmas, but it has not been granted safety approval by the authorities.

Radioactive emissions from Sellafield fell dramatically during the eighties, but Greenpeace claims that when Thorp is made operational they will increase again.

"The company says as much in its planning application, and also that in theory Thorp could lead to 15 new deaths every year. Sweden should not contribute to this in any way and must therefore bring its nuclear fuel home again," Simon Caroll of Greenpeace said.

On behalf of the Nordic environment ministers Olof Johansson has written a letter to his British counterpart in which he is "worried about increased radioactive emissions." He told SVENSKA DAGBLADET:

"Well, the aim of the letter is to stop Thorp if emissions increase. We have not received a reply, but I am continuing to push the matter. Any further environmental strain on our seas is unacceptable."

The question of Sellafield will also be raised in two weeks' time at the meeting of the Paris Convention on the environment in the North Sea. Denmark and Ireland want to include clauses to the effect that emissions from reprocessing plants must not increase.

And what about the Swedish fuel?

"Really we ought to bring it home; I think that Sweden should be responsible for its own waste. But before that is possible the matter will have to be looked into," Olof Johansson said.

The government has three possible courses of action:

- Transporting the fuel to Sweden without reprocessing would probably involve damages from OKG amounting to several hundred million kronor.
- The government could also permit the use of MOX.
- The third possibility is to see to it that the fuel is handed over to another country in return for Sweden's accepting an equivalent amount of waste. This was done ten years ago when Sweden received waste from West Germany and the Germans MOX from France's Cogema with which Sweden had a reprocessing contract.

That contract, dating from 1978, covered a total of 540 tonnes of fuel from Barseback, Forsmark, and Ringhals, but only 53 tonnes were sent on their way. In 1989 the whole contract was sold to German companies without having been of any use to Sweden.

"Yes, it was expensive; the loss has been around 1 billion kronor. But without the contract Barseback 2 would not have been allowed to start up and provide the nation with cheap electricity," said Sten Bjurstrom, managing director of Swedish Nuclear Fuel Handling.

The billion kronor have been taken from the funds for the rundown of nuclear power—one for each nuclear power station—which have been financed by levies on electricity. Because Oskarshamn was not involved in the failed Cogema deal it currently pays the lowest levies of all nuclear power stations.

Radiation From Submarine May Reach Iceland, Greenland

93P20188Z Oslo AFTENPOSTEN in Norwegian
11 Jun 93 p 5

[Article by Rolf L. Larsen: "Radioactive Emissions Threaten Norwegian Sea"]

[Excerpts] In 10 years a lot of the radioactive material from the sunken Russian submarine Komsomolets may have spread over large areas of the Norwegian Sea.

As soon as in five to six years material with accelerated radioactivity may have reached upper water strata near Greenland and Iceland in spite of the fact that the Russian submarine rests at a depth of 1,700 meters by Bear Island. Researchers at the Nansen Center for the Environment and Remote Measurement located in Bergen have calculated how the radioactive material leaking from the submarine will spread in the ocean. The researchers have not been able to say how strong the radioactive leakage will be.

The researchers used highly advanced calculator programs—known as ocean models—to study the spread of the radioactive matter.

Ocean Currents Determine Spread

"The ocean currents will determine how the radioactive matter spreads in the ocean and how it potentially will get into the food chains. The reason the higher strata of the waters around Greenland and Iceland may have a heightened radioactivity level in a few years is the dominant ocean currents in that area, and also because the spreading in the ocean to a great extent is determined by the distribution of light and heavy water. In this case the mixing occurs at an angle from great depths by Bear Island toward the surface of the Greenland Ocean," said Prof. Ola M. Johannessen and Chief of Research Peter M. Haugan at the Nansen Center.

Chief of Research Haugan and Ph.D. candidate Helge Drauge of the Nansen Center have been working for some two months developing the ocean models for the spread of radioactivity.

Today researchers at the Nansen Center use ships, buoys, satellites, and calculator programs to trace the ocean currents and natural and unnatural blends in the ocean. It took several years to develop these models. The researchers are using one such model to simulate the radioactive leakage from the Russian submarine Komsomolets which sank at Bear Island in 1989.

Increased Cooperation

At the Nansen Center numerical ocean models are being used for a variety of purposes, among them the study of variations in ocean climate and the spread of carbon dioxide and pollution. There is a lot of uncertainty in such calculations but the models are still the best way to mesh observed and theoretical information about the ocean. [passage omitted]

"More thorough studies are needed to determine how the spreading of the radioactive matter from the Russian submarine occurs. We need to strengthen the cooperation between institutions," said Professor Johannessen.

Increased Surveillance, Better Cooperation

[Passage omitted] "We need to draw on the strength of all Norwegian research entities in order to get the best possible information on what happens with the spreading of radioactivity from the submarine. Right after the accident we requested permission from the Environmental Protection Ministry to begin research on how the spreading would occur, but we did not even receive a reply from the ministry," said Johan Blindheim, of the Institute for Ocean Research.

Currently the institute goes to the sunken submarine once or twice a year to measure the radioactivity in the waters. Ingrid Svaeren at the research institute is in charge of this project. "So far the radioactive concentration is not high. It is about 30 becquerel per square meter of water."

"Compared with the waters in the same area of the Norwegian Sea, where the submarine lies, the radioactivity is three times as high. So it is important to keep a close watch on developments, and we need to go there several times a year to test the water," said Svaeren.

The ocean research company Oceanor has developed a buoy that can be placed by the sunken submarine to measure radioactivity, current, wind, and other significant data on the environment in that area. "It meets all requirements the authorities have levied on that type of equipment. The data from the buoy are transmitted by satellite to Trondheim. We already have a number of these buoys in the North Sea, but those are much too far away from where the submarine lies," said managing director Svein Tryggestad of Oceanor. [passage omitted]

Olsen Appeals to Japanese Firms in Event of Whaling Boycott

PM1706143093 Oslo AFTENPOSTEN in Norwegian
16 Jun 93 p 5

[Gunnar Filseth report: "Japan Asked To Help Alleviate Whale Boycott"]

[Text] Tokyo—Fisheries Minister Jan Henry T. Olsen made an appeal on behalf of Norway's industries threatened with a boycott over whaling, when he met with the Japanese press in Tokyo yesterday: It could prove to be a great help if the Japanese were to buy more of the products threatened with a boycott by other countries.

He said that he is happy with cooperation with the Japanese authorities who have provided good support on the whaling issue. He said that he did not think that there was anything more to be done in this respect, but had a request to Japanese industry:

"I was asked by several Norwegian companies before I left Norway whether I could not ask whether the Japanese industry could keep an eye on what happens to certain Norwegian companies if they are affected by the boycott. It would be a very great help if Japanese

industry would be prepared to take products which would otherwise run the risk of being boycotted by other parts of the world."

"I have not raised this at the official level, but think it right to mention it to you," Olsen told the Tokyo press. He made his request at two separate press conferences for the daily press and the fishing press respectively.

"I feel that the whale question has created a good image of Norway among Japanese consumers. Consumer research indicates that the strong focussing on Norway in Japan has left an impression of Norway as a serious fishing and whaling nation and a feeling that it could be easier to introduce Norwegian fish into Japan because of this."

"We will now make even greater efforts on the Japanese market by improving the quality of our products, our delivery reliability, and our marketing," the fisheries minister said.

Japanese journalists present were somewhat skeptical about whether Japanese businessmen will buy more from Norway out of solidarity and sympathy. "In Japan what are important are quality and price, not sympathies and antipathies," one of them said afterward.

At both press conferences Olsen went through the official Norwegian arguments for commercial whaling.

He was unable to give the Japanese any hope of buying Norwegian whale meat, even though the government has not imposed an export ban. Demand in Norway is so enormous that there will be nothing left.

Olsen said that he does not think that whaling will block Norwegian membership of the EC, nor that the United States will resort to sanctions. After all Norway has not broken any laws, was how he put it.

Both press conferences were well attended. They both came to deal almost exclusively with whaling—only two questions were about other things. Japan's leading television company, NHK, made a recording for its daily news program, which has around 10 million viewers according to the company's own viewing statistics.

Environmentalists Propose National Park

93EN0591Z Oslo *AFTENPOSTEN* in Norwegian
1 Jun 93 p 4

[Article by Ole Mathismoen: "Nuclear Storage in North Proposed"—first paragraph is *AFTENPOSTEN* introduction]

[Text] Russian environmental authorities are making plans to protect Novaya Zemlya while nuclear authorities want to build nuclear storage facilities there.

Russian Deputy Environment Minister Amirkhan Amirkhanov recently told government delegates from eight Arctic nations that his ministry will recommend expanding the present national parks on Franz Josef Land and Novaya Zemlya sometime in 1993. The statement was made at a conference in Fairbanks, Alaska on how to protect plant and animal life in Arctic regions.

But while Russian environmental authorities want to protect parts of the two large islands in the eastern part of the Barents Sea, there are plans to build a larger long-term storage depot for nuclear waste on Soroja to the south. According to information *AFTENPOSTEN* has received construction could begin as early as June.

Joint Storage Planned

In a recent article in *ALTAPOSTEN*, Murmansk journalist Vladimir Blinov wrote that plans are ready for a joint storage facility for the North Fleet, the nuclear power plant in Polyarnyy Sorie on the Kola Peninsula and the civilian nuclear-powered icebreaker fleet on Kola. All three have had major storage problems after dumping solid waste in the ocean was halted and the reprocessing facilities in Siberia refused to accept any more spent fuel rods. The temporary storage depots at both the icebreaker fleet's base in Murmansk and at various military bases have been full for some time. There have been big fights between the local authorities in Arkhangelsk and Murmansk over where a long-term storage facility should be built.

It is only a few weeks since the Russian Government established the largest Arctic nature preserve to date on the Taymyr Peninsula.

"The Russians are sending extremely important signals now. This is an important first step toward a joint Norwegian/Russian national park in the Barents Sea," said Dr. Peter Prokosch of the Worldwide Fund for Nature (WWF).

Military Control

At present it is unclear how the Russian Government and military people feel about turning large parts of Novaya Zemlya into a national park. The area is currently under direct military control. Novaya Zemlya is the only area in Russia where any future nuclear test blasts can occur. At least two tunnels for underground testing have already been dug. If the United States

decides to resume testing when the temporary ban expires on 1 July the Russian authorities have made it clear that they will quickly start testing bombs on Novaya Zemlya again. In recent decades there have been many bomb tests underground and in the atmosphere over Novaya Zemlya. Solid radioactive waste and old reactors have been dumped in the bays and inlets on the east coast toward the Kara Sea.

At the conference in Alaska representatives from Canada, the United States, Denmark/Greenland, Finland, Iceland, Sweden, Russia, and Norway agreed to step up the effort to establish nature preserves in northern regions. Russia has been the most active in establishing new preserves during the past year.

Nuclear Waste Storage Areas Proposed on Kola

93EN0591X Oslo *AFTENPOSTEN* in Norwegian
4 Jun 93 p 12

[Article by Moscow correspondent Halvor Tjonn: "Russians To Build Storage Depot for Nuclear Waste"—first paragraph is *AFTENPOSTEN* introduction]

[Text] Moscow has approved the plans for a nuclear waste depot on Novaya Zemlya in principle. It is not known when the facility will be built.

"It is not impossible that construction of a storage depot for nuclear waste on Novaya Zemlya could begin as early as this year. But even so it will take a long time before all the nuclear waste on the Kola Peninsula has been stored securely."

Aleksander Shuvalov, deputy director of the Russian Environment Ministry's press department, made these remarks to *AFTENPOSTEN*. Shuvalov said that the plans for a waste facility on Novaya Zemlya have been approved in principle. What remains now is to review the technical implementation.

"Under Russian law the specific technical plans must be evaluated here at the Environment Ministry before they can be carried out. I cannot say precisely how far these plans have come. After we receive the technical plans it will take us two months to go through them. If we find the plans satisfactory construction can begin immediately. I will not rule out the possibility that this will happen before the end of the year."

Shuvalov did not try to hide the fact that this is a difficult and expensive project. As far as he knows a final decision on where the facility will be located has not yet been made. Initially a site on the coast was selected, but an effort is now being made to move the facility farther inland on Novaya Zemlya. It seems likely that the storage depot will be located on Bazhmatchnaya Fjord on the southernmost of the two islands.

In spite of these concrete plans Shuvalov could not promise that all the problems associated with the storage of old nuclear waste on the Kola Peninsula will be solved

in the near future. "Removing the ships containing nuclear waste that are anchored in the Kola fjords will cost an enormous amount of money. The condition of these ships makes it impossible to tow them out on the open sea. The only solution would be to seal the waste into secure containers before hauling it away. I cannot say now when this will be done."

Expedition

The spokesman for the Russian Environment Ministry said that the Russians are making steady progress with regard to disclosing past sins in the northern regions. The joint Norwegian-Russian expedition that will look into nuclear pollution in the Barents and Kara Seas this summer has been given permission by the military

authorities to visit a fjord in Novaya Zemlya where several nuclear reactors were reportedly dumped. They are waiting for military approval to inspect two other fjords.

The plans to turn parts of Novaya Zemlya into national parkland are still on the agenda. The future fate of these plans depends on how things go with nuclear testing in the island group. Russian authorities will proceed more concretely as soon as the test area is closed. If the nuclear test site is closed there will be no reason to prevent tourists from coming to Novaya Zemlya in the future, in Shuvalov's opinion. Some 1.2 percent of Russia's total territory is national parkland. President Boris Yeltsin has made it clear that the goal is to bring this figure up to 3 percent.

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